ORDER NO. VSD9008M608

Service Manual

Operating Instructions
Mechanical Adjustment Procedures
Electrical Adjustment Procedures
Block Diagrams
Schematic Diagrams
Circuit Board Diagrams
Exploded Views
Replacement Parts List

Panasonic

Time Lapse Video Cassette Recorder

AG-6024-E -B

SPECIFICATIONS

ITEM	SPECIFICATION
Power	Source: 220~240V AC, 50~60Hz Consumption: Approx. 20W
Video	Head: 2 rotary heads, helical scanning system 49μm (NOR), 35μm (SS)
	Luminance: Frequency modulation recording Colour Signal: Converted subcarrier phase shift recording
	Input Level: VIDEO IN (BNC) 1.0Vp-p 75Ω unbalanced
	Output Level: VIDEO OUT (BNC) 1.0Vp-p 75Ω unbalanced
	Signal-to-Noise Ratio: VHS B/W: 43dB Colour: 43dB
	Horizontal Resolution: B/W: 300 lines Colour: 240 lines
Audio	Head: 1 stationary head
	Track: 1 track
	Input Level: Audio IN (phono): −10dBV, unbalanced MIC IN (M6 phono): −60dBV 600~4.7KΩ unbalanced Output Level: Audio OUT (phono): −8dBV 600Ω unbalanced Frequency Response: 50Hz~10,000Hz (3-hour mode)
	Signal-to-Noise Ratio: 43dB (3-hour mode)

ITEM	SPECIFICATION
Tape Speed	23.39mm/s (3-hour mode) 4.678mm/s (12-hour mode) 2.599mm/s (24-hour mode) Recording Time Modes: 3/12/24 hours mode FF/REW Time: Approx. 5.5min (with NV-E180)
Alarm	Input: Contact closure for alarm Reset Input: +4~+15V Camera Switching Signal Output: 12V/O Pulse Width: 20msec
Tape Format	VHS tape, (Tape width 12.7mm (1/2 inch))
Operating Condition	5°C~40°C (Temperature) 35%~80% (Humidity)
Dimensions	380(W)×89(H)×345(D)mm
Weight	4.8kg
Optional Accessories	Wired Remote Control, AG-A11 Colour Mini CCVE System, WV-CL110/WV-CM110A B/W Mini CCVE System, WV-80/WV-BL90/WV-BM90 Colour CCD Camera, WV-CL300 B/W CCD Camera, WV-BL200 Sequential Switcher, WJ-527 13″ Colour Monitor, WV-CM140 9″ B/W Monitor, WV-5370A

Specifications are subject to change without notice.
Weight and dimensions shown are approximate.

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INTRODUCTION

This Service Manual cantains all the technical information which will allow service personel to understand and service the Panasonic Time Lapse Video Cassette Recorder Model AG-6024.
The Panasonic AG-6024 is a reliable and economical time lapse video recorder for both Video logging and observation.
The AG-6024 features time-laps recording of 12 hours and 24 hours, as well as normal 3-hour recording. And the field recording system in time-lapse mode provides twice the recorded information of frame recording for clearer and more detailed images.
These are just a few of the many features that make the AG-6024 the ideal Time Lapse Video Cassette Recorder for efficient, reliable and economical surveillance and monitoring requirements.

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Features

1. **Audio recording/playback possible in 12- or 24-hours modes**
Besides the 3-hour mode, audio recording and playback can also be performed in the time lapse (12- or 24-hour) mode.
2. **Horizontal Resolution of 300 Lines**
In black and white playback, pictures of 300 line horizontal resolution can be obtained. It is also possible to get clear still picture.
3. **Selectable Multi-function Recording System**
For VTR monitoring and checking, you can select external/internal time (daily or weekly timer) recordings, auto repeat recording, alarm recording and power failure compensation for timer recording.
4. **Various Playback Modes**
To quickly review the contents of a tape, search forward/reverse at 5 times the normal tape speed and the slow-motion is useful.
5. **Built-In Time Date Generator**
This unit comes with a generator and microprocessor featuring a calendar function which enable the user to indicate times on the display, display times on the monitor and control the times of the internal timer.
6. **Recording Safety Devices**
This unit is equipped with the mode lock switch for the correct executions of a long recording.
7. **Easy Connections**
The unit can easily be connected to the TV monitor and also system connection between the video camera and the sequential switcher is convenient.
8. **Hour Meter**
Displays the amount of time the unit has been in operation. It is useful for maintenance purpose.

Regular Checks

Although this unit is designed to withstand long-term use, it is recommended that regular checks be carried out on the following items, using the hour meter as a reference. This will help keep the unit in optimum working order.

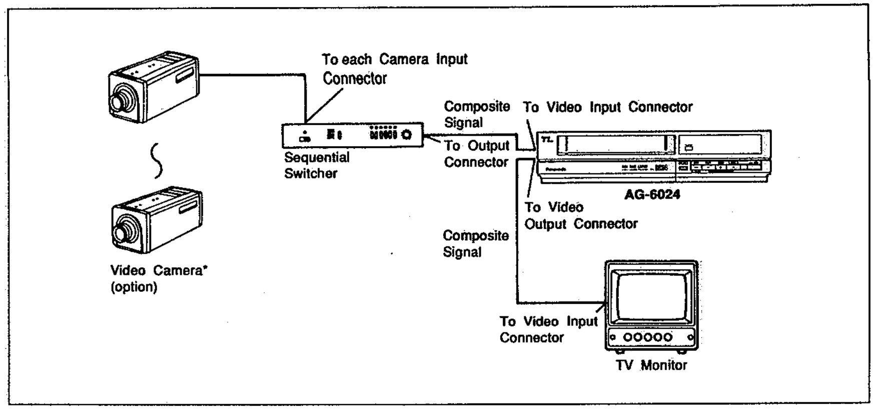
Since a VTR is a precision-made machine, it is also recommended that a maintenance and inspection contract be entered into as a means of ensuring that the machine will continue to operate in a trouble-free condition. For further details, consult with your dealer.

Inspection items	Total operating time (hours) Parts No.	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
Transport system cleaning	—	●	●	●	●	●	●	●	●	●	●
Audio heads	VBR0132	●	●	●	●	●	●	●	◎	●	●
Video heads	VEH0417-SER	●	◎	●	◎	●	◎	●	◎	●	◎
Cylinder unit	VEG0757-SER	●	●	●	●	●	●	●	◎	●	●

◎: Service life inspection
●: Cleaning
The details given in the above table serve only as general guidelines for conducting regular checks. These guidelines are subject to change depending on where and how the VTR is actually used.

AG-6024 VTR Monitoring/Checking System

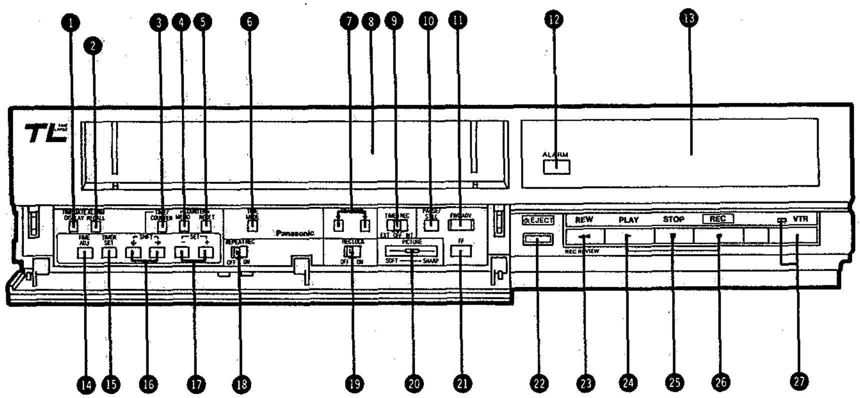
Using the Sequential Switcher (Composite System)



*The use of a video camera with genlock capabilities is recommended when setting up a system with a sequential switcher.

Do not supply the signals of a colour camera and black-and-white camera to the camera input connector at the same time since the monitor screen may be affected by sync disturbances or noise generation.

Controls and their Functions


1
2
3
4
5
6
7
8
9
10
11
12
13
TL
ALARM
TIME DATE DISPLAY
ALARM RECALL
TIME/COUNTER
MEMO
COUNTER RESET
TIME MODE
Panasonic
TIMER REC
EXT OFF INT
PAUSE/STILL
FWD ADV
TIME ADJ
TIMER SET
SHIFT
SET
REPEAT REC
OFF ON
REC LOCK
OFF ON
PICTURE
SOFT SHARP
FF
EJECT
REW
PLAY
STOP
REC
VTR
REC REVIEW
14
15
16
17
18
19
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21
22
23
24
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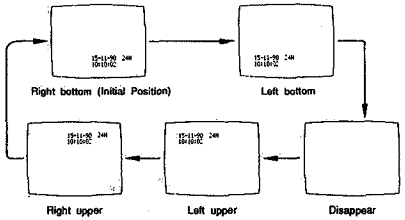
26
27

1. Time Date Display Button
Press this button to shift the time date display on the screen as described below.


15-11-90 24H
10:10:02
Right bottom (Initial Position)
Left bottom
Right upper
Left upper
Disappear

2. Alarm Recall Button
Press this button to recall the time and date recorded in the alarm mode on the TV monitor.
When pressed again, the display will return to the normal screen.

3. Time/Counter Selector Button
Press this button to toggle the display between the time and counter indications.

4. Memory Button
Press this button to switch the display between "M" and no display.
When "M" (memory stop) is displayed, tape travel with stop automatically when the counter reaches nearly at "0:00:00" during fast forward or rewind.

5. Reset Button
Press to reset the tape counter to "0:00:00".

6. Time Mode Button
Press this button to select the recording and playback time modes.
When pressed, the time mode will shift as described below.

3H → 12H → 24H

7. Tracking (+, -) Buttons
Use these buttons to adjust the tracking during playback in the 3-hour mode.
When noise appears on the screen, press these buttons to reduce the noise to the minimum.
When two buttons are pressed at the same time, tracking will return to the fixed position.

8. Cassette Holder
Inlet for cassette tape.

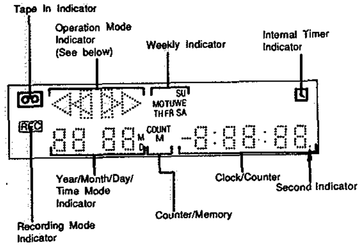
9. Timer Rec Switch
This switch is used to select the external- or internal-timer recording mode.
EXT: The recording will start automatically when the main power is turned ON.
OFF: No timer recording will take place.
INT: The recording will start and stop automatically when the power is turned ON and OFF in the time mode set using the internal timer.

10. Pause/Still Button
When this button is pressed during recording the tape is paused.
When the button is pressed during playback, the tape stops temporarily and the still picture will appear on the screen.
Pressing the button once again causes the tape to start running.

11. Forward Advance Button
Press and hold the button during still playback to advance the playback picture in the forward direction. When the button is released, the still picture will resume.

12. Alarm Mode Indicator
When the alarm recording starts, the indicator lights.

13. Display Section


Tape In Indicator
Operation Mode Indicator (See below)
Weekly Indicator
Internal Timer Indicator
SU
MO TU WE
TH FR SA
REC
COUNT
M
Year/Month/Day/ Time Mode Indicator
Clock/Counter
Second Indicator
Counter/Memory
Recording Mode Indicator

• Operation Mode Indicator

Mode	Display Indication
Playback	▷
Recording	REC ▷
Still	▯▯
Rec/Pause	REC ▯▯
Fast Forward	▷▷
Rewind	◁◁
Search Forward	▷▷
Search Reverse	◁◁
Forward Advance	▯▷

• Error Message
Displays an error code should certain abnormalities occur during operation of the unit.
The following list is an explanation of each code.
E-2: The video cassette loading motor is out of order.
E-3: The video cassette tape is not loaded properly.
E-4: Abnormal cylinder lock rotation during recording or playback.
E-5: Abnormal reel rotation during tape running.

14. Time Adjustment Button
Press this button to set the time date generator's built-in timer. The display indication on the TV monitor or Counter will turn to the time and date setting mode.
When pressed again, the display will return to normal screen.

15. Timer Set Button
Press this button to shift the display to the internal timer setting mode.
When pressed again, the display will return to normal screen.

16. Shift Buttons
Press these buttons to set the time and date, and the internal timer on the display.

17. Set Buttons
Press these buttons to set the time and date, and the internal timer on the display.

18. Repeat Rec Switch
With this switch turned ON, if the end of the tape is reached while recording, the tape is rewound and the recording will continue at the beginning of the tape.

19. Recording Mode Lock Switch
When the switch is set to the "ON" position, the VTR switch as well as the time mode and the control buttons are inoperative during recording.

20. Picture Sharpness Control
The quality of the picture played back can be sharp or soft. (See page 24.)

21. Fast Forward Button
When pressed, the tape advances rapidly.
When pressed during playback, the search forward playback picture can be viewed.

22. Eject Button
Used to eject a video cassette.

23. Rewind Button
When pressed, the tape is rewound.
When pressed during playback, the search reverse playback picture can be viewed.
Pressing this button during recording, run the tape backwards and replay the recorded section. The unit then switches back to the recording mode.

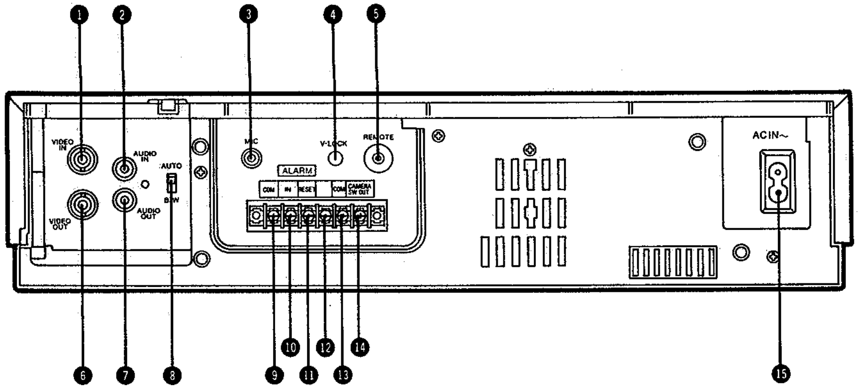
24. Play Button
When pressed, the playback starts.

25. Stop Button
When pressed, the tape travel stops.

26. Record Button
When pressed together with the Play Button, the recording starts.

27. VTR Switch/Lamp
Power is supplied to the unit when the switch is turned ON and the lamp lights up.

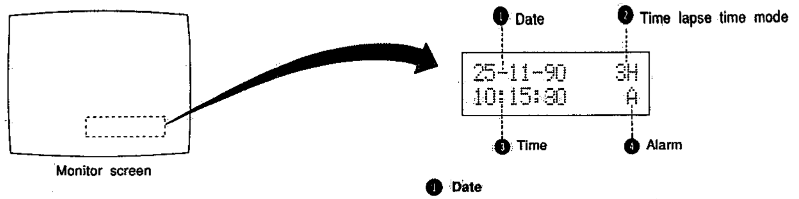
- Aven om denna omkopplare är i "OFF"-läge, gar fortfarande en del av apparaten nätspänning.
- Selv om denne omskifter er i "OFF" stilling, tilføres en del af apparatet stadig strøm.

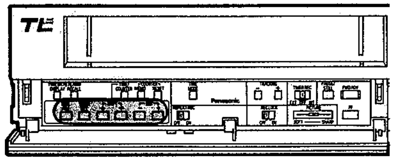


1. **Video Input Connector (VIDEO IN)**
   Connect a video camera or similar equipment to the Video Input Connector using a BNC connector.
2. **Audio Input Jack (AUDIO IN)**
   This jack (phono jack) is for audio input and take priority to the Microphone Input Jack.
3. **Microphone Input Jack (MIC)**
   This is the 3 mm jack for connecting an external microphone.
4. **Vertical Lock Control (V-LOCK)**
   If picture jitters vertically in the still playback, adjust the Vertical Lock Control using the small flat-screw driver.
5. **Remote Control Jack (REMOTE)**
   Connect an optional Remote Controller AG-A11.
6. **Video Output Connector (VIDEO OUT)**
   This is a BNC connector for the video output signal. Connect a TV monitor, video recorder etc. here.
7. **Audio Output Jack (AUDIO OUT)**
   This jack (phono jack) is for audio output.
8. **Video Mode Switch (VIDEO MODE)**
   Use during recording or playback if the video signal is unstable.
   AUTO: The unit automatically detects the type of the video input or playback signal and switches to the colour or black-and-white video signal mode.
   B/W: Selects the black-and-white video signal mode.
   Note:
   The AUTO mode may have set to colour. The switch should be set to the B/W mode, however, if it is known in advance that the unit will be used in the black-and-white mode.
9. **Common Terminal (COM)**
   Common terminal for signal ground.
10. **Alarm Input Terminal (ALARM IN)**
    This terminal is for alarm recording input signal. Connect an external sensor here.
11. **Alarm Reset Terminal (ALARM RESET)**
    This terminal is used to cancel an alarm recording. A signal strength of between +3 to +15V DC is required.
12. **Spare Terminal (SPARE)**
13. **Common Terminal (COM)**
    Common terminal for signal ground.
14. **Camera Switching Signal Output Connector (CAMERA SW OUT)**
    The camera switching signal is output via this connector.
    Connect to a sequential switcher.
15. **AC Input Connector (AC IN)**
    This is used for supplying the AC power and is connected to an AC outlet using the accessory power cord.

Date and Time Settings

Since this unit is equipped with a time date generator, the date and time can be superimposed during recording. After the power has been switched on, the normal picture indicating the date (Day/Month/Year), time of day and time mode now appears as described below.



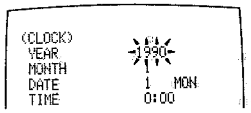
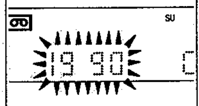
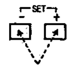
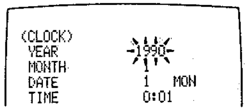
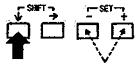
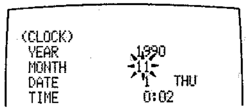


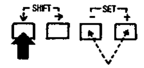
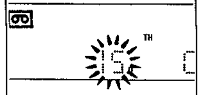
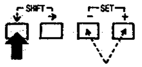
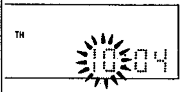
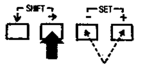
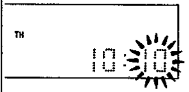
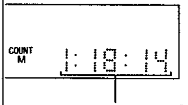
❶ **Date**
The date appears in the sequence of month, day and year.

❷ **Time lapse time mode**
This is set using the Time Mode Button.

❸ **Time**
The time is displayed in a 24-hour "Military Time" fashion. Display can be viewed when the Time Date Display Button is pressed.

❹ **Alarm**
The "A" mark signifying alarm appears only in the alarm recording mode.

Step	Operation Ex. The procedure for setting the date to thursday, 15 November, 1990 and the time to 10:10. (The Time Mode is set to "24-hour".)	Display on the TV Monitor	Display on the counter
1	Press the Time Adjustment Button to display the time and date setting screen. "YEAR" flashes. 	 (CLOCK) YEAR 1990 MONTH 1 DATE 1 MON TIME 0:00	
2	Set the year to "1990" using the Set Buttons.  •Year can be set between 1990 and 2005.	 (CLOCK) YEAR 1990 MONTH 1 DATE 1 MON TIME 0:01	
3	"MONTH" flashes when the Shift (↓) Button is pressed. Press the Set (+ or -) Buttons to set the month to "11". 	 (CLOCK) YEAR 1990 MONTH 11 DATE 1 THU TIME 0:02	

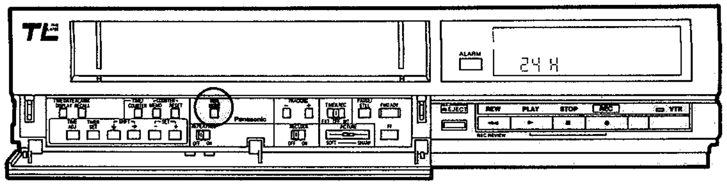
Step	Operation	Display on the TV Monitor	Display on the counter
4	"DATE" flashes when the Shift (↓) Button is pressed. Press the set (+ or −) Buttons to set the day to "15". 	(CLOCK) YEAR 1990 MONTH 11 DATE 15 THU TIME 0:03	
5	The "hour" part of "TIME" flashes when the Shift (↓) Button is pressed. Press the Set (+ or -) Buttons to set the hour to "10". 	(CLOCK) YEAR 1990 MONTH 11 DATE 15 THU TIME 10:04	
6	The "minute" part of "TIME" flashes when the Shift (→) Button is pressed. Press the Set (+ or -) Buttons to set the minute to "10". 	(CLOCK) YEAR 1990 MONTH 11 DATE 15 THU TIME 10:10	
7	Operation now starts at the set date and time of day when the Time Adjustment Button is pressed. The second count starts from 00 sec. However, the time will continue to advance if there has been no change even when the Time Adjustment Button has been pressed.	15-11-90 24H 10:10:02	 Counter digit is displayed.

When you want to cancel the display, press the Time Date Display Button until the display disappears.

Notes:

- The date and time of day and other display information (internal timer set and the alarm recall) can be backed up in the event of a power failure for about 1 week. In order for memory back up to work properly power must be supplied to the unit for at least 3 days prior to power loss or interruption.
  When the unit is purchased or if the unit is not used in the long period of time, the stored memory cannot be backed up and the time and date display indicates "YEAR: 1990, MONTH: 1, DATE: 1, TIME: 00:00", all the memory of the internal timer is set to OFF and the alarm recall disappeared.
- Compensation for leap year is made automatically.
- The time/date generator settings cannot be made during recording.
- The year setting mode does not follow after "MINUTE" part has been set. This means that if any change is to be made after the settings have been completed and the second count has started, the whole procedure should be repeated so that the appropriate change can be made.

Time Mode Selection



Check the following before time lapse record/playback operation. Select the mode according to the purpose with reference to the table shown below.

Mode	Possible recording time (hour)			Video Record Intervals (sec.)	Audio Recording	Camera switching (sec.)	Tape Running Method
	NV-E180	NV-E120	NV-E90				
3H	3	2	1.5	1/50	Possible	0.04	Continuous running 23.39 mm/sec
12H	12	8	6	0.1	Possible	0.1	Continuous running 4.678 mm/sec
24H	24	16	12	0.18	Possible	0.18	Continuous running 2.599 mm/sec

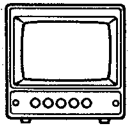
Notes:

- This unit is designed to be used for the cassette tape NV-E180.
  NV-E240 type cassette tape is not recommended for this unit.
- The possible recording time will differ depending on the type of video cassette used.
- In any time modes, sound can be recorded on the tape.
- The 12- or 24-hour modes are the time lapse modes. The pictures are recorded on a field-by field basis, and the long-time recording and playback are possible.
- Tape recorded in the time lapse mode can be played back quickly in the 3-hour mode.
- Tape recorded in the 3-hour mode can be played back in slow motion in the time lapse mode.

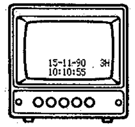
Recording

1. Apply power to all connected equipment.

2. Adjust so that the picture from the video camera correctly appears on the TV monitor.



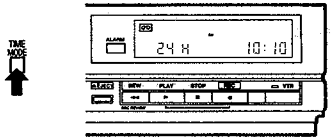
3. Make sure that the data and time displayed in the TV monitor is correct.



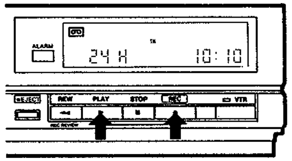
4. Select the recording modes such as Timer, Auto Repeat, External-Timer Rec and Mode Lock.

5. Insert a video cassette into this unit. Check that the record safety tab on the cassette tape is intact.

6. Select the recording time mode. (3, 12 or 24 hours)



7. Press the Play and Record Buttons at the same time.



Notes:

- When the Pause/Still Button is pressed during recording mode, the tape will be shifted to the pause mode. If this state of operation continues for about 5 minutes or more, the unit will be automatically shifted to the stop mode. (To prevent possible damage to tape and recorder.)
- In the Record Button is pressed after pressing the Pause/Still Button during playback, the picture is changed to E-E. In that case, press the Pause/Still Button again to shift the mode to the recording mode.
- Any operation can be selected during recording when the Recording Mode Lock Switch is set to the "OFF" position.
- The Auto-Repeat recording, power failure reset recording and alarm recording are operational during recording. Please note that the Time Recording cannot be performed during auto-rewind in the auto repeat recording mode.
- If the unit is in the recording mode again after stopping during time lapse recording mode with the Pause/Still Button, it will not be possible to obtain seamless-cut recordings.
- If the power failure is reset within a week, the unit will continue recording in the same recording time mode. However, this works when the power is supplied to this unit more than 3 days.
- In case of auto repeat and timer recording, remember to perform daily maintenance. (For the daily maintenance, refer to page 26.)

Better Recording

This unit is equipped with safety and monitoring functions which enable better long time recording confidence. So, carefully read the instruction given below.

Recording Mode Lock

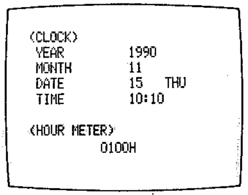
Used to prevent accidental interruption of recording (other than power failures) during long term unattended use.

REC LOCK
OFF
ON

The switches and connectors listed below function even with the Rec Lock Switch at the ON position:
Timer Rec, Auto Repeat Rec, Picture Sharpness Control Alarm IN Terminal, Alarm Reset Terminal.

Hour Meter

When the Time Adjustment Button is pressed, the Time and date setting mode including the hour meter indication will be displayed on the screen.
When the button is pressed again, the display will return to the normal screen.



```
(CLOCK)
 YEAR          1990
 MONTH         11
 DATE          15   THU
 TIME          10:10

(HOUR METER)
          0100H
```

Power Failure Reset Recording

When the power fails during recording

- If the power failure lasts less than a week, the unit will automatically start recording after the power has been restored.
- Video head and tape protection functions during power failure.
- When the power has been restored after a failure which occurred during a short FF operation with the tape at its beginning, auto repeat recording will be released and the stop mode established.
- Depending on the selection of the Timer Rec Switch, the operating modes may differ before and after the power has been restored following a power failure.

When the switch is set to the "EXT" position.

Before the power failure	After power has been restored
• Stop, Play, Rec, FF, REW modes • Auto rewinding mode during auto repeat recording	Unit is placed in recording mode.

When the switch is set to the "OFF" position.

Before the power failure	After power has been restored
Stop, Play, FF modes	Unit is placed in stop mode.
Rec mode	Unit is placed in recording mode.
REW, Auto rewinding modes during auto repeat recording	Unit is placed to the previous mode.

- However, when the power failure lasts for more than 1 week and then the power is restored, the unit will always go into stop mode at the acutal tape position.
- When the Timer Rec Switch has been set to "EXT," the VTR is always set to the recording mode once the power has been restored after a power failure.
  If the Timer Rec Switch has been set to any other position and if, once the power has been restored after a power failure, the power is switched off again before the VTR settles down and operates stably, the unit will be set to the stop mode and operation will not be continued.

Timer Recording

The timer recording mechanism functions in 2 ways—internal and external timer recordings.

Internal Timer Recording

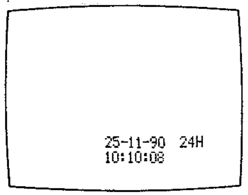
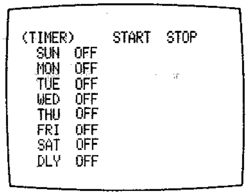
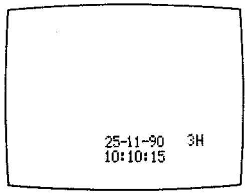
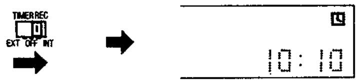
Start and end times

Bear in mind the following points when setting the start and end times.

- When the end time setting is later then the start setting:
  Recording will commence at the start time on the day concerned and stop at the end time on the same day.
  Example: 8:30<17:00
- When the start time setting is later than the end time setting or when the two times are the same on the weekly timer:
  Recording will commence at the start time on the day concerned and stop at the end time on the following day.
  Example: 17:00>8:30
- When the two times are the same on the daily timer.
  Recording will commence all day long (24-hours).
  Example: 8:30=8:30

> - The weekly timer is able to set a programme on each day of the week.
> - When the weekly timer and daily timer are both set OFF, no display appears for the start time or end time.

Internal Timer Record Setting/Operating

Step	Operation	Display on the TV Monitor
1	Check that the video cassette has been inserted. • Be sure that when a tape without the accidental prevention tab is used, only playback will be possible.	
2	Check that the present time appears correctly on the monitor screen.	 25-11-90 24H 10:10:08
3	Press the Timer Set Button to display the internal timer setting mode. 	 (TIMER) START STOP SUN OFF MON OFF TUE OFF WED OFF THU OFF FRI OFF SAT OFF DLY OFF
4	Set the internal timer start/end time. • For settings, see "Daily Timer" or "Weekly Timer" sections. See page 15-18.	
5	Press the Timer Set Button again when the setting is finished. 	 25-11-90 3H 10:10:15
6	Set the Timer Rec Switch to the "INT" position. 🕓 lamp lights up on the counter display.  	

The unit's condition after the setting.

- The unit's power will be OFF and the operation button will not function even if the button is pressed.
- If the operating time has not been set, the 🕓 lamp will flash.
- Setting of the internal timer can be backed up in the event of a power failure for about 1 week. In order for memory back up to work properly power must be supplied to the unit for at least 3 days prior to power loss or interruption. When the unit is purchased or if the unit is not used in the long period of time, the stored memory cannot be backed up and all the settings of the timer are set to OFF.

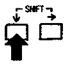
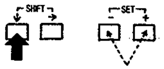
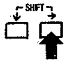
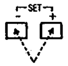
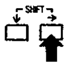
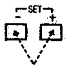
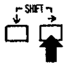
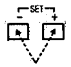
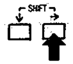
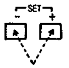
To cancel the internal timer mode.

Set the Timer Rec Switch to the "OFF" position.

Note:
Since it takes about 10 seconds for the tape loading to be completed, it is recommended that the start time for timer recording be set 1 minute earlier.

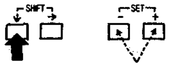
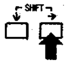
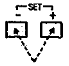
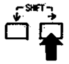
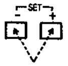
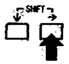
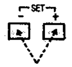
The timer recording mechanism functions in 2 way—recording during the same time every day (daily timer) or during the same time of each day of the week (weekly timer).

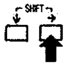
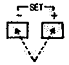
Daily Timer (Every Day Recording)

Step	Operation Starting every day at 8:30 and ending at 17:00 (5:00 p.m.)(daily timer)	Display on the TV Monitor
1	Press the Shift (↓) Button until "OFF" starts flashing at the "SUN" (sunday) position. 	(TIMER) START STOP SUN OFF MON OFF TUE OFF
2	Press the Shift (↓) Button until the flashing moves to the "DLY" (daily) position, and press the Set (+, –) Button to set the display to "ON". 	FRI OFF SAT OFF DLY ON 0:00 0:00
3	When the Shift (→) Button is pressed, setting moves on the start time and the section corresponding to the "hours" flashes. 	FRI OFF SAT OFF DLY ON 0:00 0:00
4	Press the Set (+ or –) Button to set the hours to "8". 	FRI OFF SAT OFF DLY ON 8:00 0:00
5	When the Shift (→) Button is pressed, the section corresponding to the "minutes" flashes. 	FRI OFF SAT OFF DLY ON 8:00 0:00
6	Press the Set (+ or –) Button to set the minutes to "30". 	FRI OFF SAT OFF DLY ON 8:30 0:00
7	When the Shift (→) Button is pressed, setting moves on to the end time and the section corresponding to the "flashes". 	FRI OFF SAT OFF DLY ON 8:30 0:00
8	Press the Set (+ or –) Button to set the hours to "17". 	FRI OFF SAT OFF DLY ON 8:30 17:00
9	When the Shift (→) Button is pressed, the section corresponding to the "minutes" flashes. 	FRI OFF SAT OFF DLY ON 8:30 17:00
10	Press the Set (+ or –) Button to set the minutes to "00". 	FRI OFF SAT OFF DLY ON 8:30 17:00

1—7

Weekly Timer (Each Day of the Week Recording)

Step	Operation **Starting at 8:30 and ending at 17:00 (5:00 p.m.) from Sunday through Thursday, and starting at 9:00 and ending at 12:00 on Friday and Saturday (weekly timer)**	Display on the TV Monitor
1	Press the Shift (↓) Button until "OFF" starts flashing at the "SUN" (Sunday) position. Press the Set (+ or –) Button so that "ON" will be displayed. 	(TIMER) START STOP SUN OFF MON OFF TUE OFF
2	When the Shift (→) Button is pressed, setting moves on to the start time and the section corresponding to the "hours" flashes. 	(TIMER) START STOP SUN ON 0:00 0:00 MON OFF TUE OFF
3	Press the Set (+ or –) Button to set the hours to "8". 	(TIMER) START STOP SUN ON 8:00 0:00 MON OFF TUE OFF
4	When the Shift (→) Button is pressed, the section corresponding to the "minutes" flashes. 	(TIMER) START STOP SUN ON 8:00 0:00 MON OFF TUE OFF
5	Press the Set (+ or –) Button to set the minutes to "30". 	(TIMER) START STOP SUN ON 8:30 0:00 MON OFF TUE OFF
6	When the Shift (→) Button is pressed, setting moves on to the end time and the section corresponding to the "hours" flashes. 	(TIMER) START STOP SUN ON 8:30 0:00 MON OFF TUE OFF
7	Press the Set (+ or –) Button to set the hours to "17". 	(TIMER) START STOP SUN ON 8:30 17:00 MON OFF TUE OFF

Step	Operation	Display on the TV Monitor
8	When the Shift (→) Button is pressed, the section corresponding to the "minutes" flashes. 	(TIMER) START STOP SUN ON 8:30 17:00 MON OFF TUE OFF
9	Press the Set (+ or –) Button to set the minutes to "00". 	(TIMER) START STOP SUN ON 8:30 17:00 MON OFF TUE OFF
10	Following steps 1 to 9, set a start time of "8:30" and an end time of "17:00" from Monday ("MON") through Thursday ("THU"). Following the same procedure, set the start and end times for Friday ("FRI") and Saturday ("SAT"). The operating time of the internal timer has now been set.	

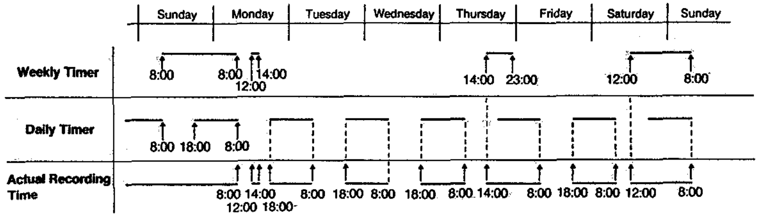
• Example of mixed daily and weekly recording

The timer recording will be as below, depending on the times which have been set.

```
(TIMER)    START  STOP
 SUN  ON    8:00   8:00
 MON  ON   12:00  14:00
 TUE  OFF
 WED  OFF
 THU  ON   14:00  23:00
 FRI  OFF
 SAT  ON   12:00   8:00

 DLY  ON   18:00   8:00
```

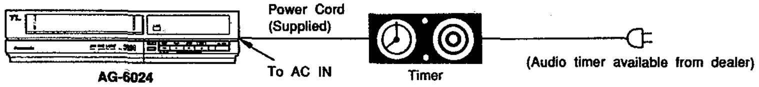
If the timer recording is set as the example, the daily/weekly timer recordings and the actual recording time will be as shown below.

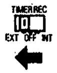


- The times for each day of the week can be displayed and checked every week for each day concerned.

External timer recording

When the external timer recording is desired, connect as shown below. (Timer can be purchased locally.)


Power Cord
(Supplied)
To AC IN
AG-6024
Timer
(Audio timer available from dealer)

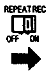
Step	Operation	Display on the TV Monitor
1	Check that the video cassette has been inserted. • Be sure that when a tape without the accidental prevention tab is used, only playback will be possible.	
2	Set the Timer Rec Switch to the "EXT" position. When the Timer Rec Switch is set the "EXT" position, power will be supplied from the external timer at the preset time and the unit will be in the recording mode.  TIMER REC EXT OFF INT	

Notes:

- If the video cassette has not been inserted or if its accidental erasure prevention tab has been broken out, the external timer recording cannot be performed, but the timer playback will be activated.
- External timer recording takes precedence over auto repeat recording and power failure reset recording.

Auto Repeat Recording

When the cassette tape end is detected, the tape is automatically rewound to the starting point and again starts to run for repeat recording.

Step	Operation	Display on the TV Monitor
1	Set the Repeat Rec Switch to the "ON" position.  REPEAT REC OFF ON	

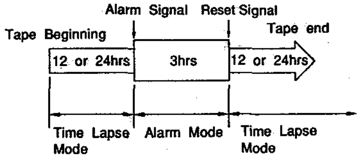
Notes:

- In case of auto repeat recording, remember to carry out the daily maintenance.
- During auto repeat rewind mode, the VTR does not accept the alarm signal.
- When the alarm signal is input during auto repeat recording, the tape stops at its end and the alarm recording is cancelled. In this case, auto repeat recording can be performed.
- If a power failure occurs during automatic rewind while auto repeat recording is in progress, the tape will be rewound as far as its beginning after the power has been restored. If, once the power has been restored after a power failure, the power is switched off again before tape rewinding commences, the VTR will not perform auto repeat recording even when the power is restored, and it will be set to the stop mode. In order to avoid this happening, it is recommended that the Timer Rec Switch be set to the "EXT" position.

Alarm Recording

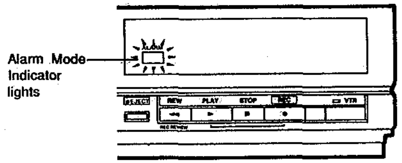
If an abnormality is encountered during long-time monitoring, the alarm will automatically function.

Principle of Alarm Recording

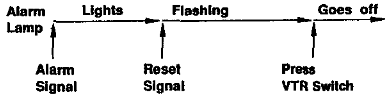

Alarm Signal
Reset Signal
Tape Beginning
Tape end
12 or 24hrs
3hrs
12 or 24hrs
Time Lapse Mode
Alarm Mode
Time Lapse Mode

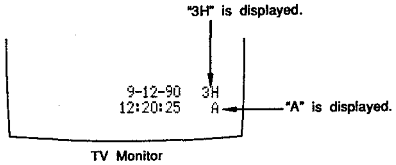
- If an alarm signal is input by the alarm sensor (door switch, interphone switch, etc.) during recording in time lapse mode, the recording speed is shifted to the high speed mode to record the state of abnormality in detail.

Alarm and Display Given in Alarm Recording

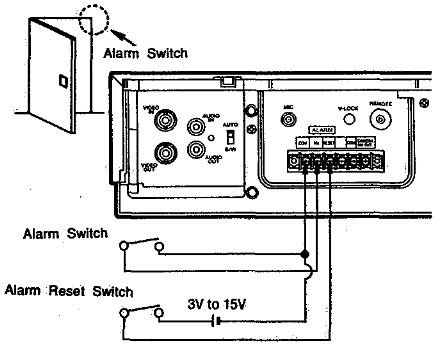

Alarm Mode Indicator lights

- When the alarm signal is input, the alarm lamp lights and proceed as follow:


Alarm Lamp
Lights
Flashing
Goes off
Alarm Signal
Reset Signal
Press VTR Switch

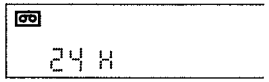
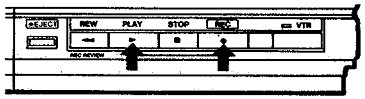

"3H" is displayed.
9-12-90 3H
12:20:25 A
"A" is displayed.
TV Monitor

Connection for Alarm Recording


Alarm Switch
Alarm Switch
Alarm Reset Switch
3V to 15V
ALARM

- With the alarm switch turned ON, alarm recording starts up. After that, it can be reset by setting the alarm reset switch to ON.
Then the recording mode is shifted back to the original time lapse mode.
The alarm can be reset even by pressing the Time Mode Switch during alarm recording. It cannot be reset when the Recording Lock Switch is set to the ON position during recording or when the Timer Rec Switch is in the "INT" position.

Alarm recording mode settings

1	Check that the video cassette has been inserted. • Be sure that when a tape without the accidental prevention tab is used, only playback will be possible.	
2	Press the Time Mode Button. Each time the button is pressed, the display will change as follows; 3H → 12H → 24H	
3	Press the Play and Record Buttons at the same time.  EJECT REW PLAY STOP REC VTR REC REVIEW Hereafter when alarm signal is input, the unit will switch to the preset time mode and will perform alarm recording until the reset signal is input.	

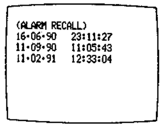
- If the Repeat Rec Switch is set to the "ON" position, the unit will be established the repeat recording at the tape end.

• Alarm Recall

The time of the alarm signal input can be confirmed when desired.
Press the Alarm Recall Button.
The alarm recall display will be shown on the TV Monitor.
Press the button again to return to the normal screen.

- When alarm signal is input, the time is stored in the memory for up to 6 inputs, and displayed. If more than 6 inputs have been supplied, data will be cleared from the screen starting with the oldest first.

ALARM RECALL



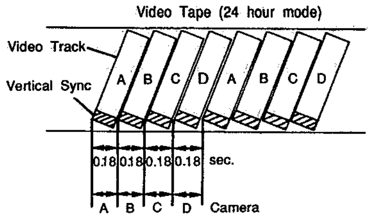
```
(ALARM RECALL)
16·06·90   23:11:27
11·09·90   11:05:43
11·02·91   12:33:04
```

- Alarm recall can be backed up in the event of a power failure for about 1 week. In order for memory back up to work properly power must be supplied to the unit for at least 3 days prior to power loss or interruption. When the unit is purchased or if the unit is not used in the long period of time, the stored memory cannot be backed up and the alarm recall disappeared.

Sequential Switcher Connected Recording

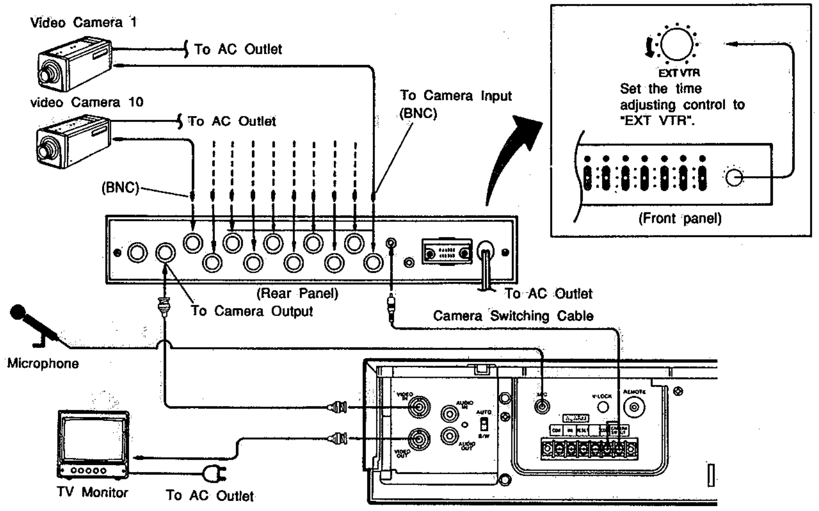
When recording with multiple cameras, the timing for automatic selection of the sequential switcher can be controlled by this unit, and multiple cameras can be correctly operated.

Principle of Camera Switching


Video Tape (24 hour mode)
Video Track
Vertical Sync
A
B
C
D
A
B
C
D
0.18
0.18
0.18
0.18
sec.
A
B
C
D
Camera

- In 24-hour mode, the camera is automatically switched over in the position of vertical sync signal every video tracks.
- The camera switching interval varies depending on the time mode. (Refer to page 10.)

Connecting for Sequential Switcher (option)


Video Camera 1
To AC Outlet
video Camera 10
To AC Outlet
(BNC)
To Camera Input (BNC)
EXT VTR
Set the time adjusting control to "EXT VTR".
(Front panel)
(Rear Panel)
To Camera Output
To AC Outlet
Camera Switching Cable
Microphone
TV Monitor
To AC Outlet
VIDEO IN
AUDIO IN
AUTO
B/W
VIDEO OUT
AUDIO OUT
MIC
V-LOCK
REMOTE

Note:

- If EXT TIMING is not provided for sequential switcher or camera switching is not used, set the time to a point longer than the video recording interval (see page 10) of recording time mode.

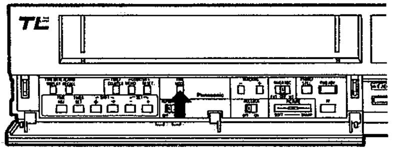
Playback

Before operation, set the Timer Rec Switch to the "OFF" position.

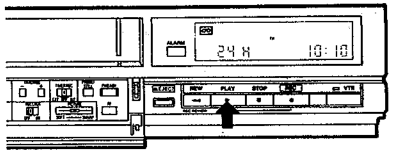
1 Turn on the power supply to this unit and the TV monitor.

2 Insert a recorded cassette tape into this unit.

3 Select the time mode.



4 Press the Play Button.



Notes:
- A drop out noise appears on the screen in the 12- or 24-hour mode playback, but this is not a malfunction.
- Vertical dancing may occur in the 12- or 24-hour mode playback, but this is not a malfunction.
- When noise has appeared in the still playback, press the Forward Advance Button to continue advancing. This will eliminate the noise.
- During playback with the external timer setting mode, if the AC cord is disconnected and again connected or if normal power is restored after a power failure, this unit will automatically shift from playback to recording mode.
- When the Pause/Still Button is pressed during playback, this unit is set to still mode and a still picture appears on the TV screen. To clear it, press the Pause/Still Button again or the Play Button. If the Still mode continues for over 5 minutes, the unit will be placed in the Stop Mode.
- When a tape recorded in the time lapse mode (12- or 24-hour) is played back in the same mode, the picture slightly oscillates but this is not a malfunction.
- If horizontal AFC on the monitor is too long or random interlaced camera is connected, a skew distortion may appear on the upper part of the playback picture, but this is not a malfunction.

Better Playback

Carefully read the following description for better playback on this unit.

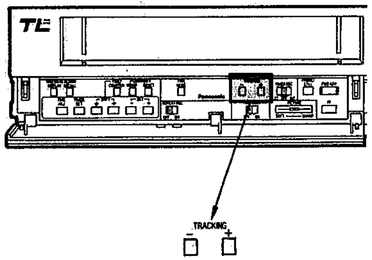
Tracking Control

Noise appears in the picture or the data and time cannot be read due to noise during playback in the 3-hour mode.

➡

- Do not adjust the tracking control in the 12- or 24-hour mode playback.
  Tracking control can only be activated in the 3-hour mode playback.

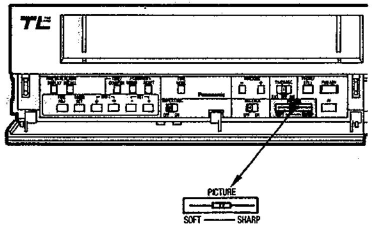
Reduce the noise to the minimum by pressing the Tracking Button (+ or –) during playback in the 3-hour mode. When two buttons are pressed at the same time, tracking will return to the fixed position.



Playback Picture Sharpness Adjustment

To make the playback picture softer or sharper. ➡

Adjust the picture quality by the Picture Control.

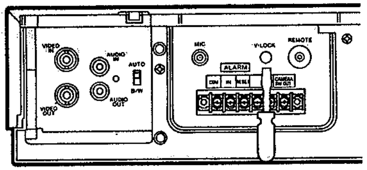


Picture is made softer.

Picture is made sharper.

Vertical Lock Adjustment

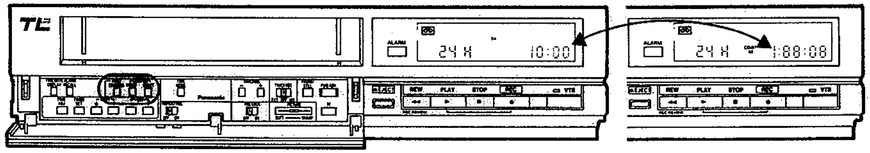
If picture jitters vertically in the Still mode, adjust the V-Lock Control using the screwdriver.
If the TV Monitor has a vertical hold control, adjust the control together with the V-Lock Control.
- Vertical dancing may occur in the 12- or 24-hour mode playback, but this is not a malfunction.



Counter

Switching between counter and time displays

The counter display on this unit can be switched between time and tape counter. Every time the TIME/COUNTER button is pressed, the display is switched alternately between time and tape counter.



Time Display   Tape Counter

Memory Button

When the MEMORY button is pressed, the "M" mark appears if the counter display has been selected and the tape will stop in the position near the 0:00:00 counter display during fast forward or rewind. (The "M" mark is cleared when the time display is selected for the counter.)

- The "M" mark is automatically cleared during rewind while auto repeat recording is in progress, and the tape is rewound as far as its beginning. The "M" mark will then appear.

Reset Button

The tape counter display can be reset to "0:00:00" by pressing the Reset Button.
The counter is reset regardless of whether the tape counter or time display is indicated. However, the reset display will appear only in the tape counter display mode.

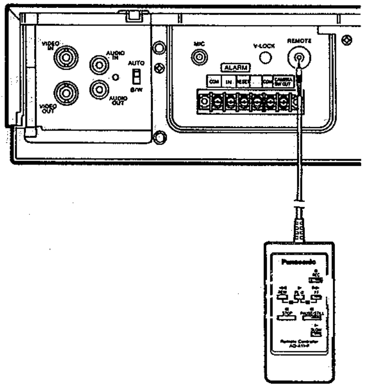
- The counter display is reset when the cassette tape is inserted.

Note:
The counter and time operation cannot be performed when the Rec Lock Switch is in the ON position during recording or when the Timer Rec Switch is in the INT position.

Remote Controller

When an optional remote controller AG-A11 is connected to the Remote Control Jack on the rear panel, the unit can be controlled at a distance about 2 meters away from the unit.

Button functions as follows;
Recording, Play, Fast Forward, Rewind, Search (Forward/Reverse). Pause/Still, Stop and Forward Advance.



Daily Maintenance

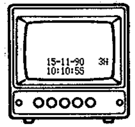
This unit is designed for long-time service. It is recommended however, that you carry out a daily maintenance procedure. This will assure continued proper operation.
Note: When auto repeat recording is desired, take care to carry out the daily maintenance.

Procedure

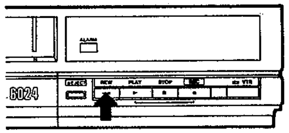
(1) Turn ON the VTR Switch of the unit, and equipment such as video camera and TV monitor which are connected to the monitoring system.

(2) Make sure that a proper picture can be seen on the TV monitor.

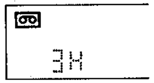
(3) Check the date and time displayed on the TV monitor.



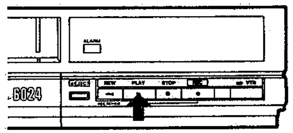
(4) Rewind the cassette tape recorded on the previous day by a few counts.



(5) Press the Time Mode Buttons to set the "3H" mode.



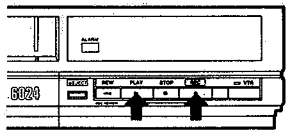
(6) Press the Play Button.



(7) Check the picture played back.

(8) Check for abnormality of the date and time of recording.

(9) Press the Play and Record Buttons at the same time.



(10) Check the picture played back in "3H" mode.

(11) After having checked all, select the mode which is to be set.

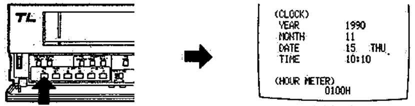
Measure to be taken after checking

If abnormality should be found, turn OFF the VTR switch and disconnect the power cord plug from the outlet, then contact your authorized service personnel.

Periodical Maintenance

The hour meter informs you of the time the unit has been operating.
When the Time Adjustment Button is pressed, Hour Meter indication will appear on the screen.
This helps you decide when to clean the unit or replace parts in order to ensure the best performance.
For details, consult your authorized service personnel.

- If the time and date adjustment is not changed after pressing the Time Adjustment Button, the present time will be displayed as it is.



```
(CLOCK)
 YEAR          1990
 MONTH         11
 DATE          15  THU
 TIME          10:10

(HOUR METER)
           0100H
```

TV Monitor

Troubleshooting

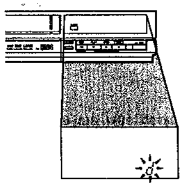
Check the following points once again.

Installation

Power is not supplied.	• Check that power cord plug is properly connected to an AC outlet.
E-E pictures do not appear.	• Check the connection of this unit to TV monitor and video camera. • Check for defective contact of cord.
E-E pictures are not clear.	• Correctly adjust the focus of video camera.

Function/Operation

No operation with button pressed.	• Is the video cassette inserted correctly? Press the Eject Button to take out the video cassette and insert it correctly. • Is the Timer Rec Switch to the "OFF" position? • Check for flashing of "ɗ" Mark.
"ɗ" Mark is flashing.	• The unit does not operate because a safety device is actuated. Wait until the lamp goes out.



In case of moisture detection.

The "ɗ" mark at display section flashes.

⬇

Ejection will remain incomplete when a video cassette has been inserted.

⬇

Wait until the "ɗ" mark goes out with VTR switch turned "ON". It may take a few hours, although it depends upon conditions.

Date and time display data are not memorized in case of power failure.	• Check if main power supply to connected equipment is off. • Check if the power cord plug of this unit is disconnected from the outlet for a long period of time. Connect the power cord plug of this unit to an AC outlet to charge it for at least 3 consecutive days.

Recording

Playback, fast forward and rewind are possible, but recording is not possible.	• Check that the video cassette safety tab is not broken.
Recording is discontinued.	• Check if the video cassette tape is at the end. • Check if more than 5 minutes has passed after pressing the Pause/Still Button during recording. • Carry out the daily maintenance sufficiently. There must be something wrong if this kind of trouble takes place often. In that case, contact your authorized service personnel.

Recording

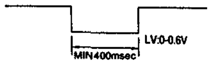
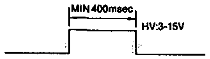
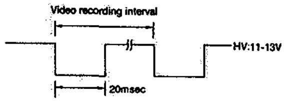
Power failure is over, but automatic continuation for recording is not resumed.	• Has a long-term power failure (lasting more than a week) occurred? To ensure that the unit is placed in the recording mode even with a prolonged power failure, set the Timer Rec Switch to the "EXT" position.
Not possible to stop recording.	• Check if the Recording Mode Lock Switch is "OFF".
Timer recording for 1-week programme is not correct.	• Check that the day of the week was correctly set when setting the date and time. (See page 17.)
Some cameras do not work in use of multiple cameras.	• Set the time to a point longer than the video recording interval of the recording time mode by turning the adjust of the sequential switcher. • Connect the camera switching cable between unit and the sequential switcher. (See page 22.)
Auto repeat recording is not possible.	• Check if the Stop Button was pressed during auto rewind mode.
Timer recording is not possible.	• Check the timer recording Start and End time and the present time. • Check that the Timer Rec Switch is set to the "INT" or "EXT".
Alarm recording is not possible.	• Check that the alarm sensor is correctly connected to Alarm Input Terminal.

Playback

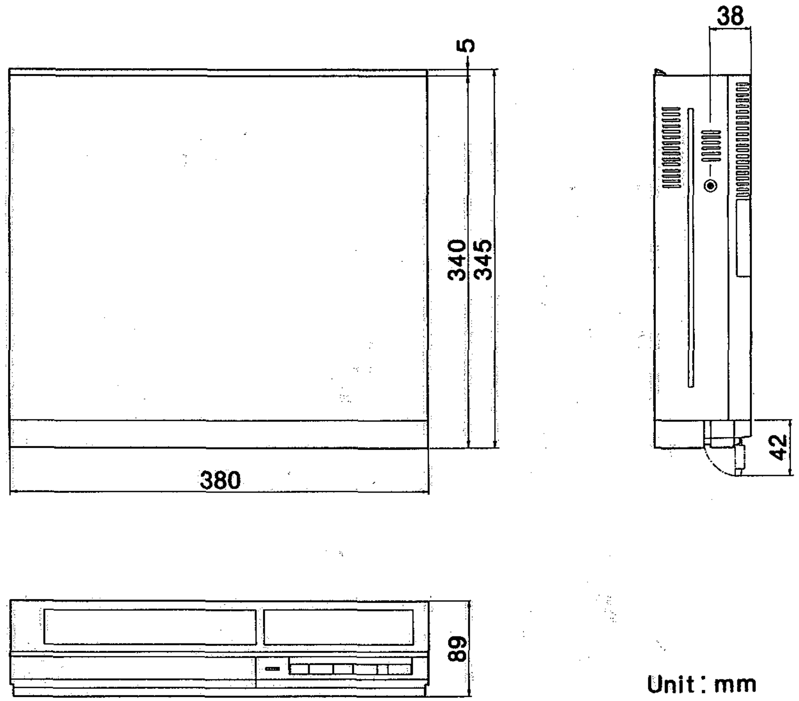
Pictures played back include noise sometimes, and they are not sharp and clear.	• Adjust by the Tracking Control. (See page 24.) Clogging and deterioration of the video heads are the possible causes. Contact your authorized service personnel.
Pictures played back flicker looking like snowfall.	• Check for dirt on the video head. Contact your authorized service personnel.
In case of multiple cameras, two scenes are played back during camera changeover	• Check that the Camera Switching Cable is connected correctly.
When the power supply of the recorder is turned ON, recording begins and playback operation is not possible.	• Check that the Timer Rec Switch is set to the "OFF" position.
Connecting and disconnecting the power cord plug of this unit caused recording to start up, and playback not to start.	• Check that the Timer Rec Switch is set to the "OFF" position.

Refer servicing to authorized service personnel.

Input/Output Terminal Signal Level

Terminal	Signal Level	Note
Alarm Input	 LV:0-0.6V MIN 400msec	LOW Input
Alarm Reset Input	 MIN 400msec HV:3-15V	HIGH Input
Camera Switching Output	 Video recording interval HV:11-13V 20msec	

Dimensions



38
5
340
345
380
42
89

Unit : mm

PARTS LOCATION

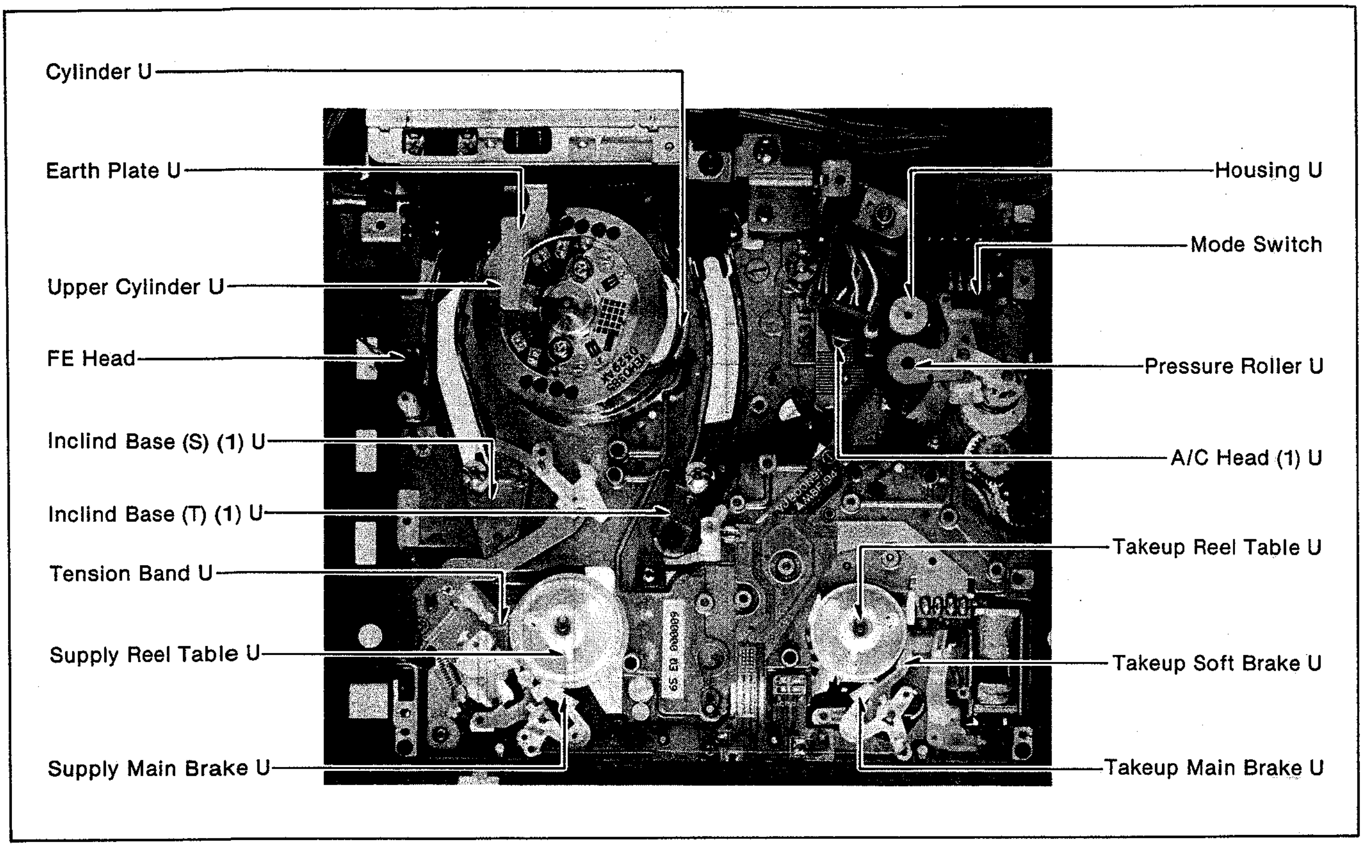

Cylinder U
Earth Plate U
Upper Cylinder U
FE Head
Inclind Base (S) (1) U
Inclind Base (T) (1) U
Tension Band U
Supply Reel Table U
Supply Main Brake U
Housing U
Mode Switch
Pressure Roller U
A/C Head (1) U
Takeup Reel Table U
Takeup Soft Brake U
Takeup Main Brake U

Figure 1 Top View

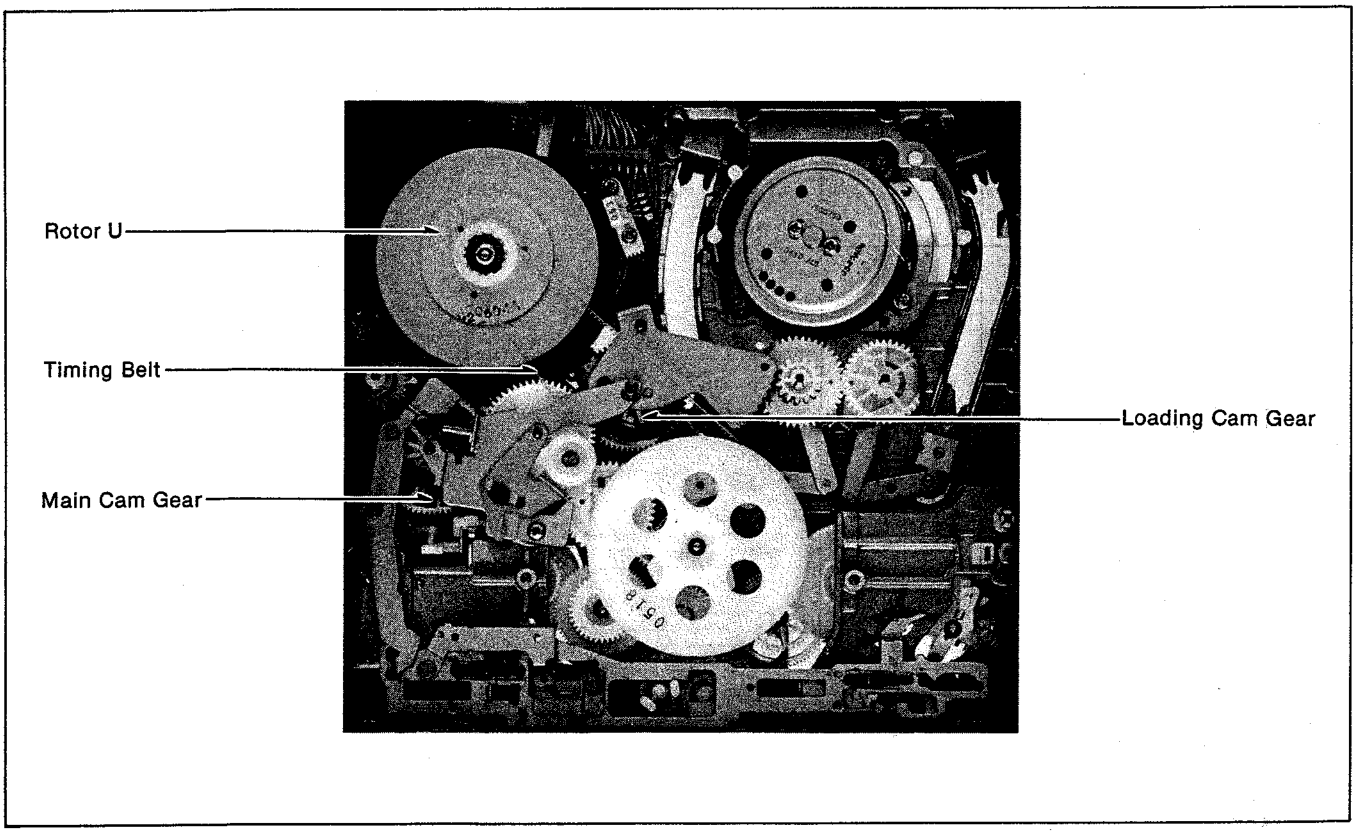

Rotor U
Timing Belt
Main Cam Gear
Loading Cam Gear

Figure 2 Bottom View

REGULAR MAINTENANCE

The purpose of periodic maintenance is to preserve the functioning of this machine throughout it's useful life. The user or service dealer should perform these maintenance regularly to ensure that maximum utility is obtained from the machine.

The VCR is a complicated piece of equipment. It contains many belts, rollers, heads etc., which become worn, and deteriorate as time goes by, causing trouble. Dust and dirt will also impede the proper functioning of the machine. In light of this, it is very important that overall maintenance be done according to the maintenance chart to maintain the functions of the VCR, and to avoid accidental problems. This maintenance should also be performed after any repairs are done on the equipment.

The VCR used for business applications requires particular attention for several reasons. The installation conditions and applications are not always the best. Long use times, or poor environmental conditions may adversely affect the lifespan and performance of the machine. Regular maintenance assures that the purchaser obtains the maximum value for his expenditure. Accordingly, the necessity of regular maintenance should be fully explained at the time of sale, as well as during after-sale repairs.

MAINTENANCE CHART

The following periodic maintenance is required to prolong the life of the machine.

Ref. No. IN P/L	Parts Name	Hour									
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000
—	Tape Transporters	●	●	●	●	●	●	●	●	●	●
34 (1)	A/C Head (1) U	●	●	●	●	●	●	●	◎	●	●
7 (1)	Upper Cylinder U	●	◎	●	◎	●	◎	●	◎	●	◎※2
6 (1)	Cylinder U	●	●	●	●	●	●	●	◎	●	●
14 (1)	Supply Reel Table U	●	●	●	●△	●	●	●	●△	●	●
71 (1)	Takeup Reel Table U	●	●	●	●△	●	●	●	●△	●	●
133 (2)	Rotor U	●	●△	●	●△	●	●△	●	●△	●	●△
72 (1)	Housing U								◎		
45 (1)	Pressure Roller U				◎				◎		
24 (1)	Supply Main Brake U				◎				◎		
27 (1)	Takeup Main Brake U				◎				◎		

Ref. No. IN P/L	Parts Name	Hour									
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000
28 (1)	Takeup Soft Brake U				◎				◎		
13 (1)	Tension Band U				◎				◎		
132 (2)	Timing Belt				◎				◎		
5 (1)	Earth Plate U				◎				◎		
17 (1)	FE Head	●	●	●	●	●	●	●	◎	●	●
55 (1)	Mode Switch								◎		
142 (2)	Loading Cam Gear		■		■		■		■		■※1
111 (2)	Main Cam Gear		■		■		■		■		■※1
58 (1)	Inclind Base (S) (1) U		■		■		■		■		◎※1
62 (1)	Inclind Base (T) (1) U		■		■		■		■		◎※1

Note
※1. Use new grease after taking out old grease.

※2. Life span of the upper cylinder unit (video heads) varies depending on environmental and using condition such as temperature, humidity, dust, derv, tape speed and different tape used with unit.
Please consult Panasonic authorized personnel when perform replacement.

*NOTE:

Symbol	Maintenance	Requirement	Remark
●	Cleaning	Ethy-alcoholor Cleaning Liquid (Purchase locally)	Wipe dirt from the parts using soft cloth Impregnated with Ethy-Alcohol. Note:When cleaning rubber parts, avoid using excessive alcohol since it may accelerate deterioration of these parts. After cleaning with alcohol, wipe the alcohol quickly and thoroughly.
◎	Replacement	------	--------
△	Lubrication	High Quality Spindle Oil	Supply one or two drops of oil.

DISASSEMBLY PROCEDURES

1. DISASSEMBLY FLOW CHART

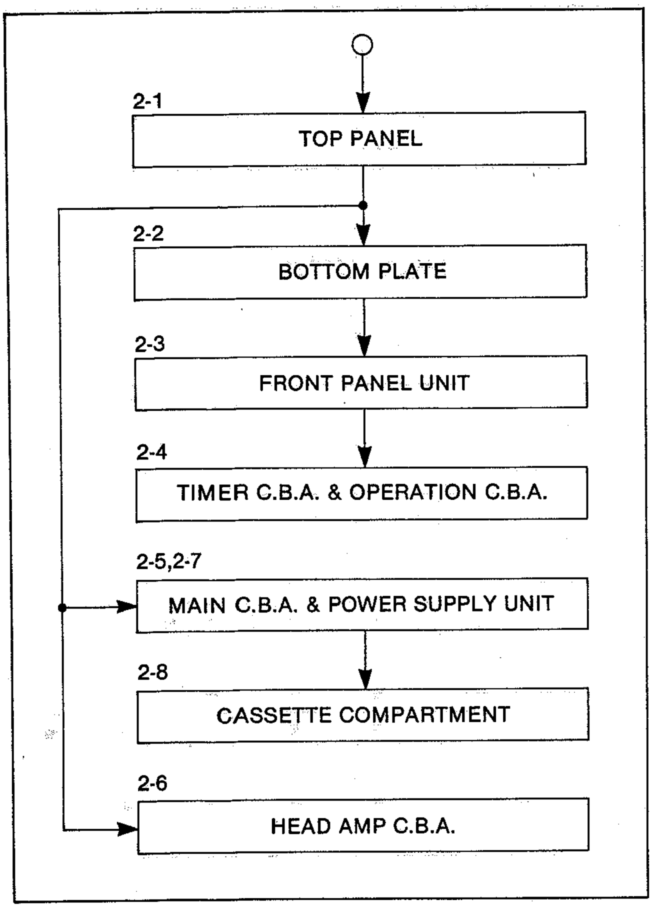

2-1
TOP PANEL
2-2
BOTTOM PLATE
2-3
FRONT PANEL UNIT
2-4
TIMER C.B.A. & OPERATION C.B.A.
2-5,2-7
MAIN C.B.A. & POWER SUPPLY UNIT
2-8
CASSETTE COMPARTMENT
2-6
HEAD AMP C.B.A.

Figure D1

The above flow chart describes the order of steps for removing the cabinet parts and certain printed circuit boards in order to gain access to the items needing servicing. To reassemble the unit, follow the steps in reverse order.

2. DETAILED DISASSEMBLY METHOD

2–1. Top Panel Removal

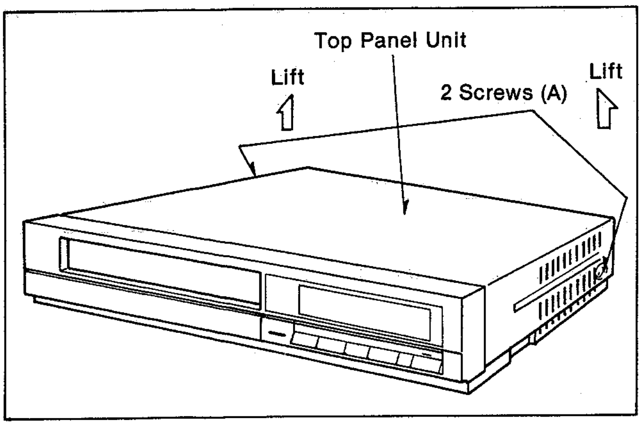

Top Panel Unit
Lift
2 Screws (A)
Lift

Figure D2 Top Panel Removal

1. Unscrew the 2 screws (A) on the Top Panel.
2. Carefully lift the rear of the panel and slide it off the back of the unit.

2–2. Bottom Plate Removal

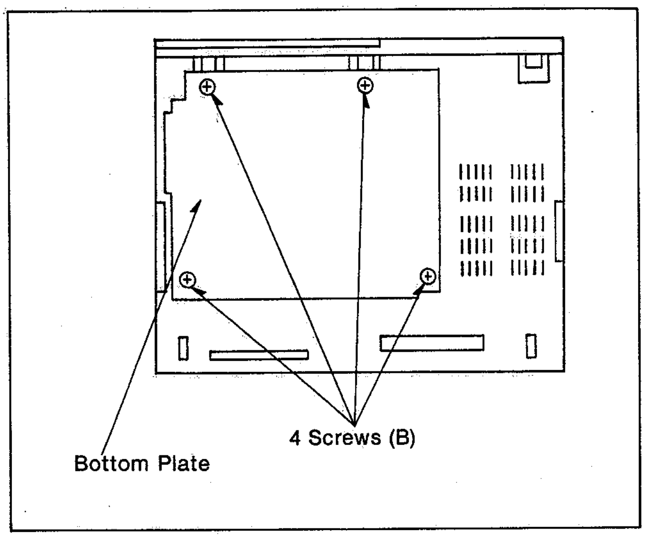

4 Screws (B)
Bottom Plate

Figure D3 Bottom Plate Removal

1. Unscrew the 4 screws (B) and remove the bottom plate.

2–3. Front Panel Unit Removal

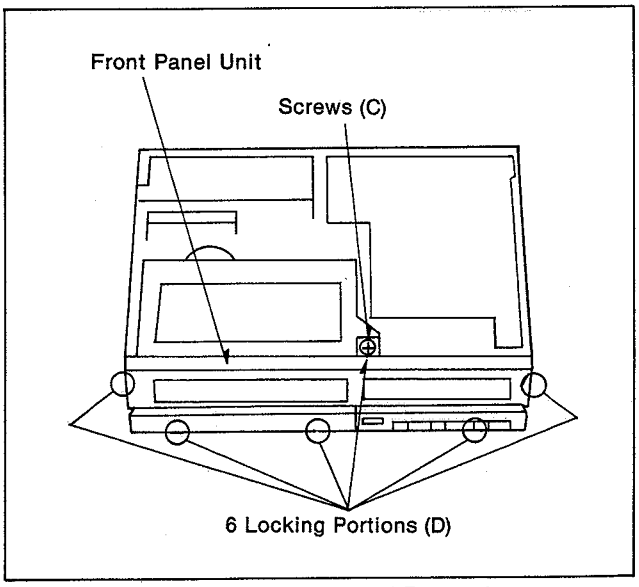

Front Panel Unit
Screws (C)
6 Locking Portions (D)

Figure D4 Front Panel Removal

1. Unscrew the screw (C) and unlock the 6 hooks (D).
2. Remove the front panel unit.

2–4. Timer C.B.A. and Operation C.B.A. Removal

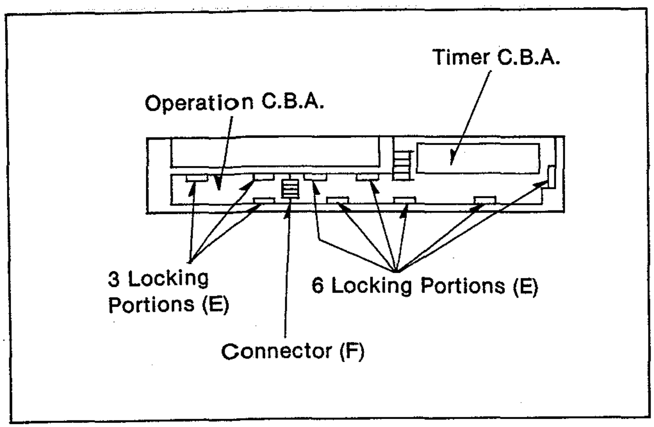

Timer C.B.A.
Operation C.B.A.
3 Locking Portions (E)
6 Locking Portions (E)
Connector (F)

Figure D5

1. Unlock the 9 hooks (E) and remove the Timer C.B.A. and Operation C.B.A.
2. Carefully disconnect the connector (F) on the Timer C.B.A. and remove the Operation C.B.A.

Note: How to remove the connector (F)
When removing the connector (F), carefully lift the top portions (G) of the connector to remove.

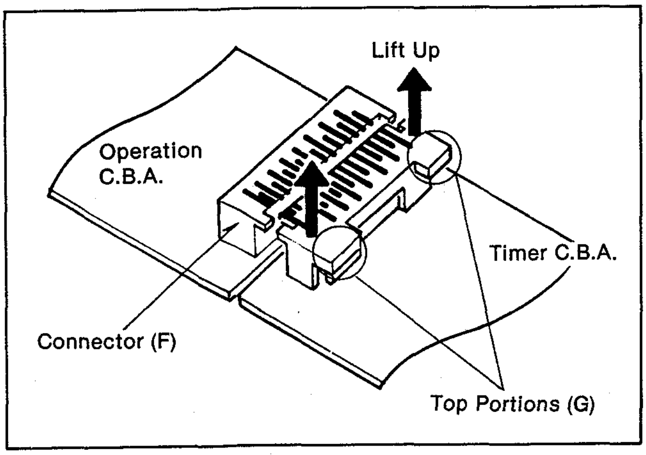

Lift Up
Operation C.B.A.
Timer C.B.A.
Connector (F)
Top Portions (G)

Figure D6 Connector Removal

2–5. Main C.B.A. and Power Supply Unit Removal

1. Unscrew the 4 screws (H) and 2 screws (I).
2. Open the Main C.B.A. as shown in item 2–7.
3. Unscrew the screw (J) and 2 screws (K).
4. Pull out the Power Supply unit.

2–6. Head Amp C.B.A. Removal

1. Unscrew the 2 screws (L) and carefully disconnect connectors P501 & P502.
2. Pull out the Head Amp C.B.A.

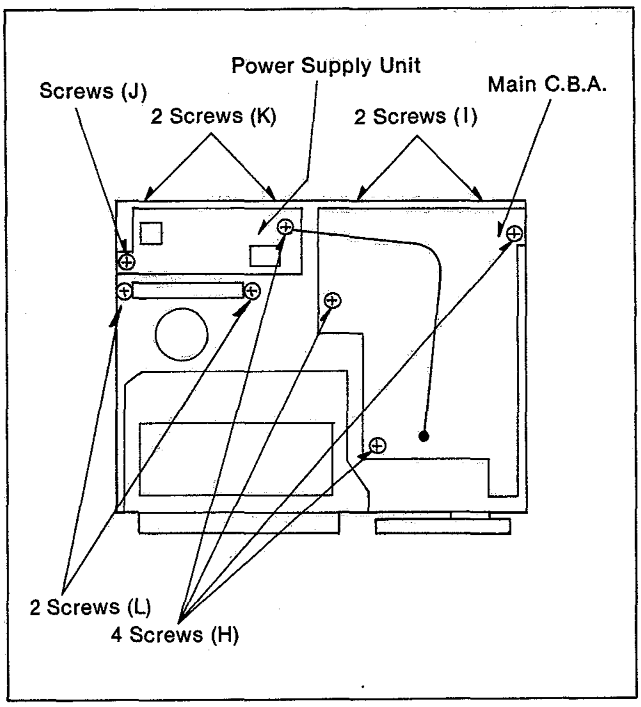

Power Supply Unit
Screws (J)
Main C.B.A.
2 Screws (K)
2 Screws (I)
2 Screws (L)
4 Screws (H)

Figure D7 Main C.B.A. and Power Supply Unit Removals

2–7. Main C.B.A. Servicing

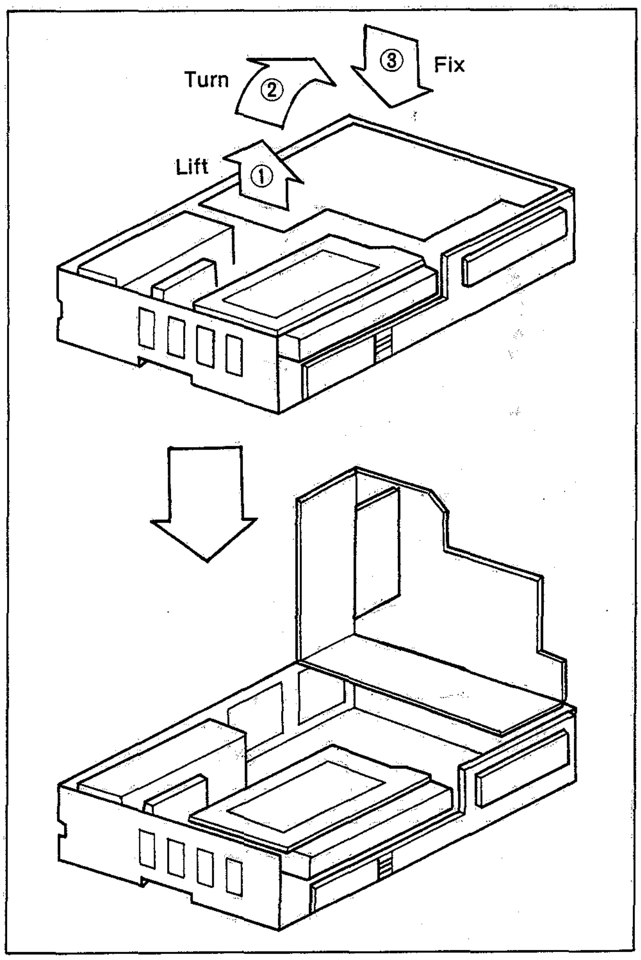

Turn
②
③
Fix
Lift
①

Figure D8 Main C.B.A. Servicing

2–8. Cassette Compartment Removal

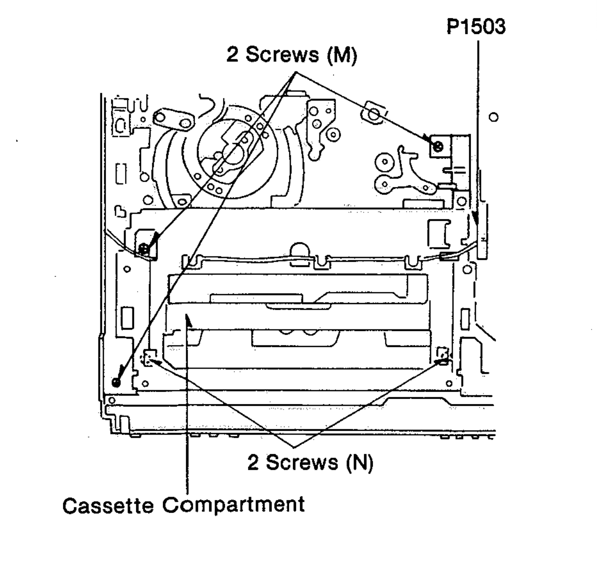

P1503
2 Screws (M)
2 Screws (N)
Cassette Compartment

Figure D9 Cassette Compartment Removal

Unscrew the 3 screws (M).
Slide the cassette holder until appearing 2 screws (N) by turning (clockwise) the Capstan Motor Unit (located in the bottom side as shown in Figure D10) and remove the 2 screws (N).
Remove the wire cable from connector P1503 mounted on the Takeup Photo Tr C.B.A., then carefully pull out the Cassette Compartment.

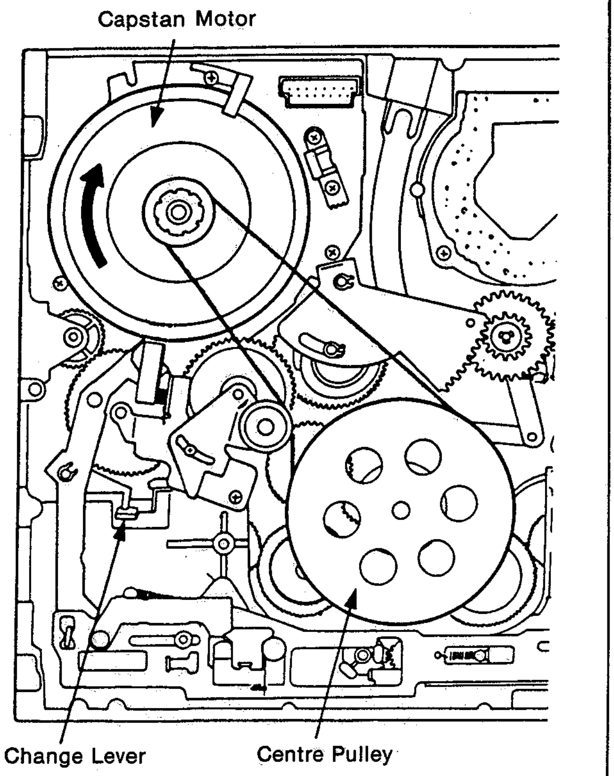

Capstan Motor
Change Lever
Centre Pulley

Figure D10 Location of Capstan Motor

Note: When reinstalling the Cassette Compartment, refer to Mechanical Adjustment Procedures.

SETTING OF INTERNAL SW

The AG-6024 also has internal switches, which are located in the following location.

The table shows the function of internal switch and Test point.

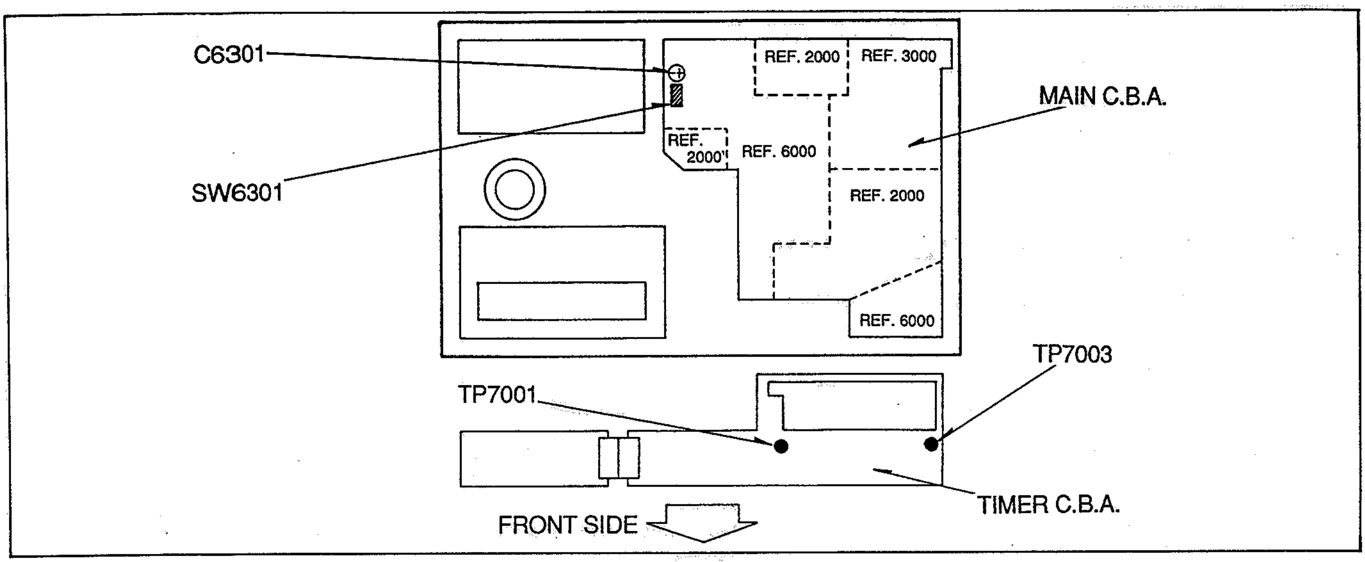


Figure 1

PLACE	SW/TP	FUNCTION	OPERATION		FACTORY STANDARD
			ON	OFF	
MAIN C.B.A.	SW6301	BACK UP SW	BACK UP OPERATION	NO BACK UP OPERATION	ON
TIMER C.B.A.	TP7003	HOUR METER RESET	CONNECT TP7003 and GND		000H

Figure 2

SERVICE INFORMATION

(1) BACK–UP RESET

If the following abnormal symptom is happened in the condition of power "ON".

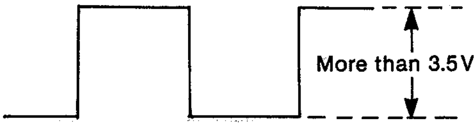
<< Symptom >>

1) Display doesn't light or light brigtly in part.
2) VTR doesn't work.

In this case reset the back–up circuit as the following procedure.

<< Reset Procedure >>

1) Disconnect the AC plug.
2) Remove the Top Cover.
3) Set the internal switch (SW6301) on the Main C.B.A. to the "OFF" position.
4) Connect a 560 ohm resistor between plus pole side and minus pole side of C6301.
5) Keep this condition for more than 2 seconds.
6) Connect a scope to TP7001 and confirm the oscillator frequency does not appear or a scope.
7) Set the internal switch (SW6301) on the Main C.B.A. to the "ON" position.
8) Confirm the oscillator frequency appear on a scope.



9) Reset the switch (SW6301) to the original position.

(2) HOUR METER RESET

<< Reset Procedure >>

1) Connect a jumper wire between TP7003 and GND for more than 1 second.
2) Confirm the HOUR METER indication to "0000".

(3) Error Message

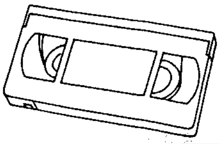
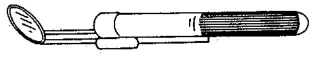
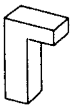
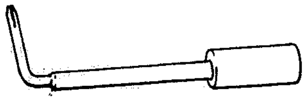
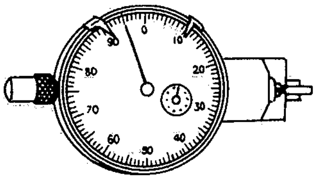
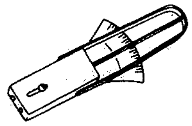
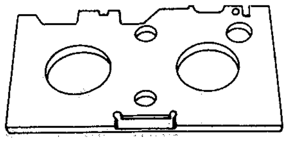
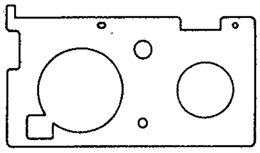
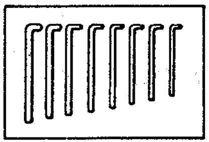
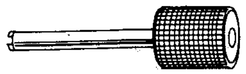
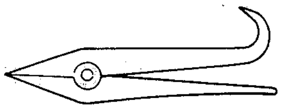
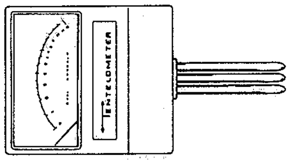
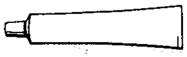
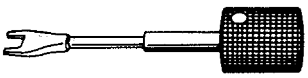
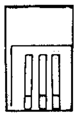
The display on the front panel shows an error code should certain abnormalities occurs during operation of the unit.
The following list is an explanation of each code.

E–2: The video cassette loading motor is out of order.
E–3: The video cassette tape is not loaded properly.
E–4: Abnormal cylinder lock rotation during recording or playback.
E–5: Abnormal reel rotation during tape running.

MECHANICAL ADJUSTMENT PROCEDURES

The regular maintenance is important to maintain the initial specification of the deck and to prevent tape damage.
The specified servicing fixture must be used to conduct adjustment.
The following fixtures, tools and measuring equipments are required to conduct complete Mechanical Adjustment.

1. SERVICING FIXTURES & TOOLS

VFM8180HMDH VHS Alignment Tape 	VFK0343 Check Light 	VFK0344 Post Height Adjustment Fixture (P1) 
VFK0269 L Type Screwdriver 	VFK0190 Reel Table Height Gauge 	VFK66 Fan Type Tension Gauge 
VFK0191 Post Adjustment Plate 	VFK0387 Tension Post Adj. Fixture 	VFK0326 Hex. Wrench Set (0.7, 0.9, 1.2, 1.5, 1.6, 2.0, 2.4, 3.0 mm) 
VFK0329 Post Adj. Screwdriver 	VFK0335 Retaining Ring Remover (3mm/4mm) 	VFK0132 Back Tension Meter (Tentelometer, Made in U.S.A.) 
MOR265 Morlytone Grease (Cam Gear, Slide Section, Hyper Pressure Sections etc.) 	VFK0328 H-Position Adj. Screwdriver 	VFK27 Head Cleaning Stick 
Cleaning Liquid (Alcohol) <Purchase Locally> (Tape Transport Rubber Parts etc.)	High Quality Machine Oil <Purchase Locally> (Reel Shaft, Capstan Shaft etc.)	

2. SERVICE INFORMATION

2-1. HOW TO EJECT MANUALLY

If the electoral circuit is defective and the action of unloading and front unloading don't work prorerly, it is possible to eject manually as follows.

1. Take out the Main AC.
2. Release the direction as shown in Figure M1.
3. Turn the capstan motor to counter–clockwise slowly until the Clutch Disk is locked. (Clutch Disk is locked once in one rotation)
4. Release the Change Lever again when the Clutch Disk is locked.
5. Repeat the step 2 and 3 until cassette is ejected.

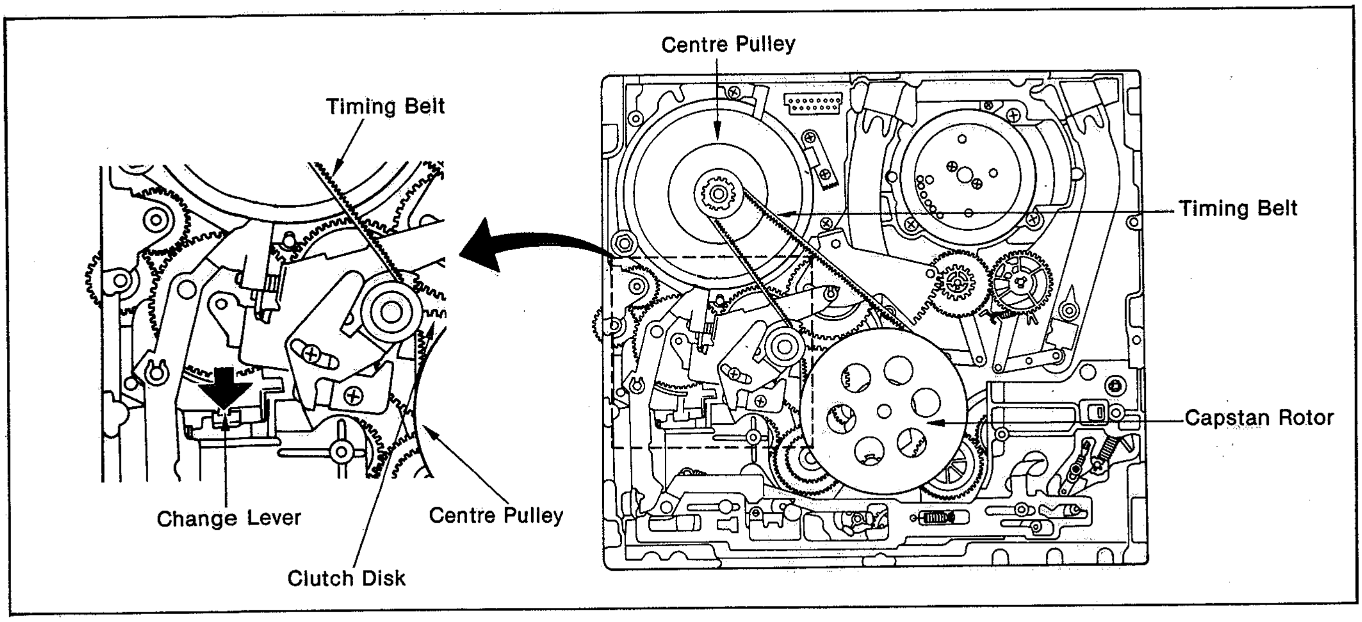


Figure M1

2-2. HOW TO SEE THE MOVEMENT OF MECHANISM WITHOUT CASSETTE COMPARTMENT

Since capstan motor works as loading motor and front loading motor, phase relationship between cassette compartment and mechanism is important, so Playback and FF/REW can not be performed even just only taking out the cassette compartment, however, if you want to see the mechanical movement without cassette compartment, it is possible as follows.

1. Take out the Main AC.
2. Take out the 5 pin flexible cable from connector on the cassette compartment and remove the cassette compartment from chassis. Set the Mechanism to stop (FF/REW) mode as following items 3.,4.,5.,6.
3. Release the change lever by pushing it to arrow mark direction as shown in Figure M1.
4. Turn the capstan motor clockwise untill the Clutch Disk is locked. (Clutch Disk is locked once in one rotation)
5. Release the change lever again when Clutch Disk is locked.
6. Repeat item 4 and 5 until mechanism come to stop (sub loading) position as shown in Figure M2. (STOP position is same as FF/REW position, therefore, when you rotate the capstan motor in STOP position, supply or Take up reel table is rotated corresponding with direction of rotation)
7. Turn the power on.
8. Now, any operation can be performed without cassette compartment.

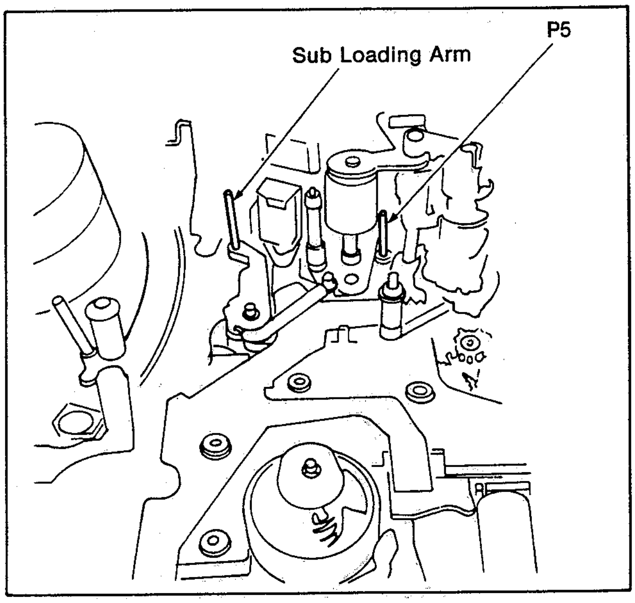


Figure M2

*Notes:
1. Don't add the large torque to any gears not to break it.
2. When reinstalling the cassette compartment, refer to Reinstallation of Cassette Compartment procedures.
3. It is not possible to operate the mechanism from Eject position.

3. CYLINDER MAINTENANCE PROCEDURES

3-1. REPLACEMENT OF THE DD CYLINDER UNIT

Work with extreme care when removing or replacing the D.D. cylinder unit.
Do not touch the video head during servicing.

1. Remove the 2 screws (R) to take the Head Amp Pack Out.
2. Remove the 1 screw (S) to take the Earth Holder Unit Out.
3. Disconnect the 5P connector on the cylinder drive C.B.A.

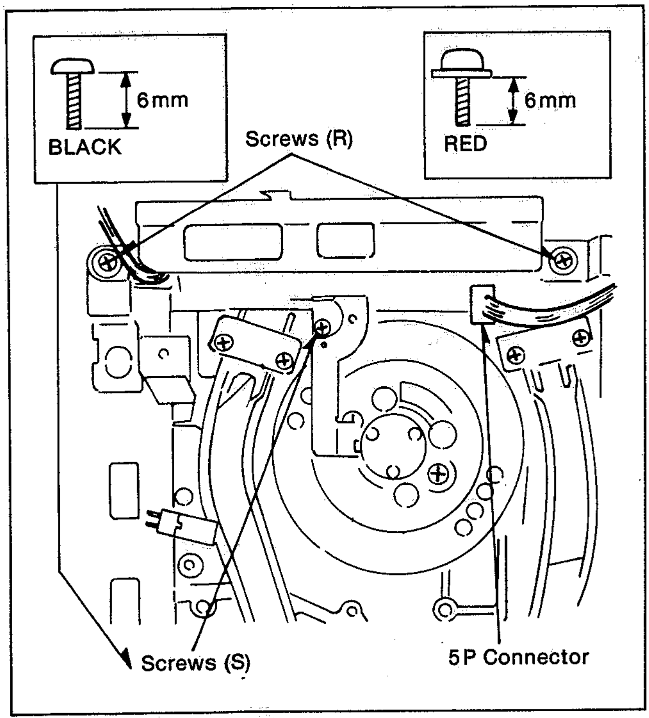


Figure M3

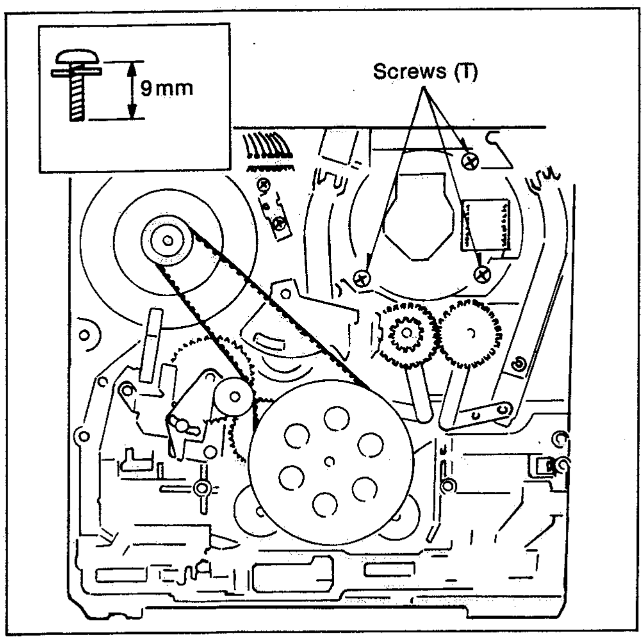


Figure M4

4. Remove the 3 screws (T) to take the D.D. cylinder unit (with the cylinder drive C.B.A.) out.

*Note: Since there is very little clearance between the D.D. cylinder unit and the chassis, remove the D.D. cylinder unit gently and carefully.

5. Reinstall the new D.D. Cylinder Unit, tighten the 3 screws (T) and reinstall the Earth Holder Unit, tighten the 1 screw (S).
Then re-connect the Head Amp pack and 5P connector and tighten 2 screws (R).

*Notes:
1. Gently rub the video head in direction of tape travel with Head cleaning stick.
2. After replacement, maintenance is required, perform "TAPE INTER-CHANGE ABILITY ADJUSTMENT".

3-2. REPLACEMENT OF THE UPPER CYLINDER UNIT

1. Remove two screws as shown below.
2. Unsolder 8 soldered portions indicated by arrows on the C.Board.
3. Remove the Upper Cylinder Unit by lifting it upward.

*Note: Soldered portion can be easily removed by using de-soldering wire, etc.

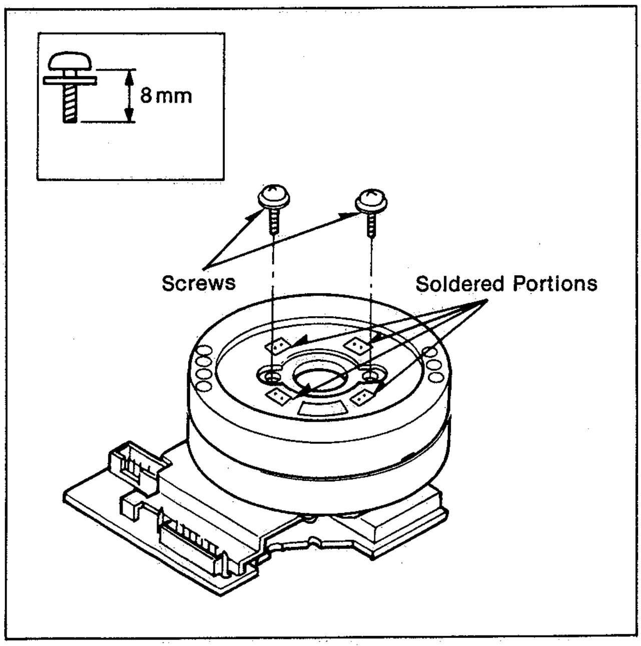


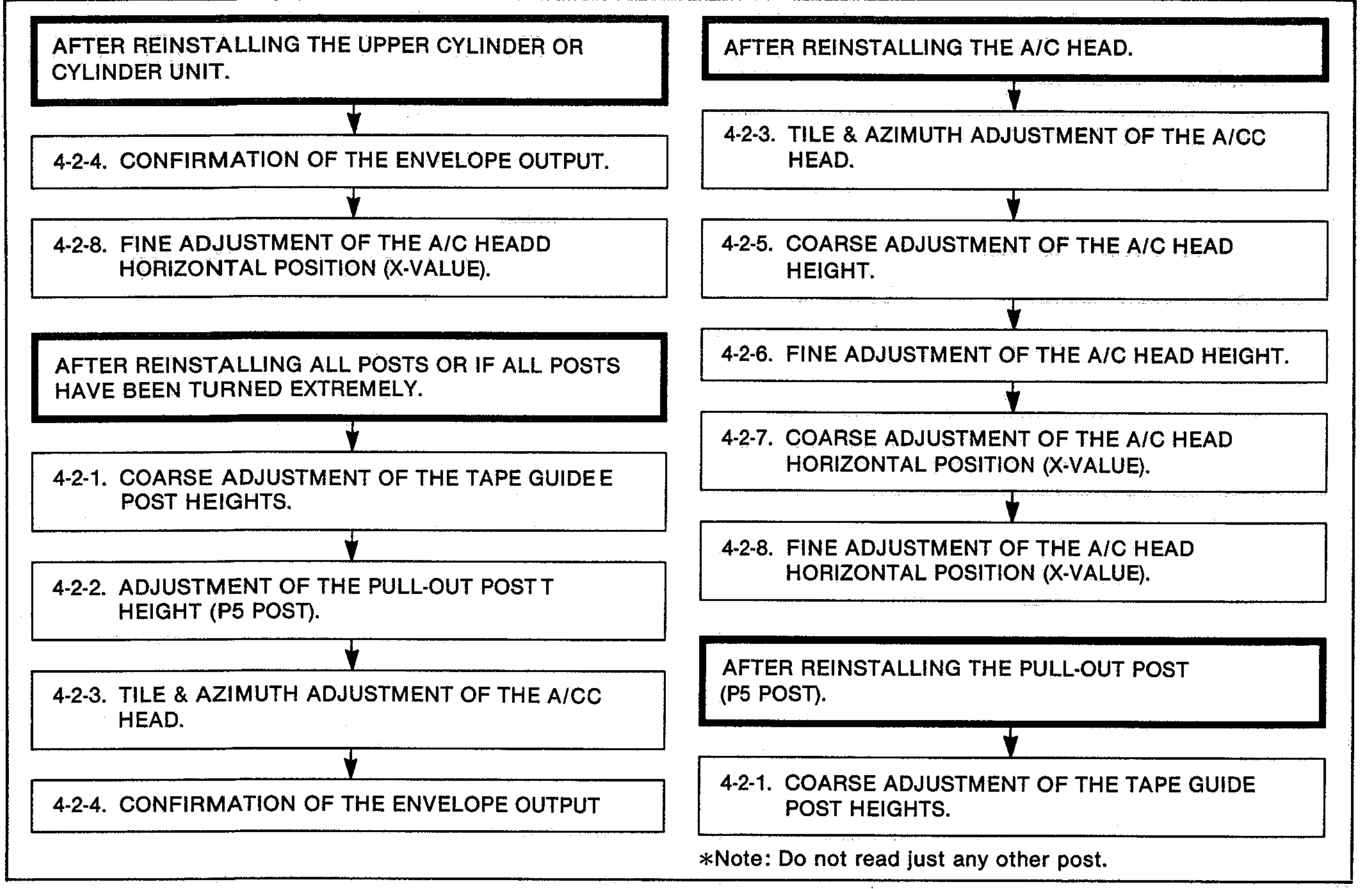
Figure M5

4. The upper cylinder unit can be reinstalled by reversing the removal procedure, however, when the upper cylinder is reinstalling, be extremely carefull s that white portion of C. Board of the upper cylinder correctly matches the white portion of the bottom cylinder.

4. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES

4-1. ADJUSTMENT FLOW CHART

This flow chart describes the order of steps for adjusting the tape guide posts and A/C head in order to gain access to the items needing servicing. (Figure M6)



AFTER REINSTALLING THE UPPER CYLINDER OR CYLINDER UNIT.

4-2-4. CONFIRMATION OF THE ENVELOPE OUTPUT.

4-2-8. FINE ADJUSTMENT OF THE A/C HEADD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING ALL POSTS OR IF ALL POSTS HAVE BEEN TURNED EXTREMELY.

4-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDEE POST HEIGHTS.

4-2-2. ADJUSTMENT OF THE PULL-OUT POSTT HEIGHT (P5 POST).

4-2-3. TILE & AZIMUTH ADJUSTMENT OF THE A/CC HEAD.

4-2-4. CONFIRMATION OF THE ENVELOPE OUTPUT

AFTER REINSTALLING THE A/C HEAD.

4-2-3. TILE & AZIMUTH ADJUSTMENT OF THE A/CC HEAD.

4-2-5. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT.

4-2-6. FINE ADJUSTMENT OF THE A/C HEAD HEIGHT.

4-2-7. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

4-2-8. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING THE PULL-OUT POST (P5 POST).

4-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

*Note: Do not read just any other post.

Figure M6-1

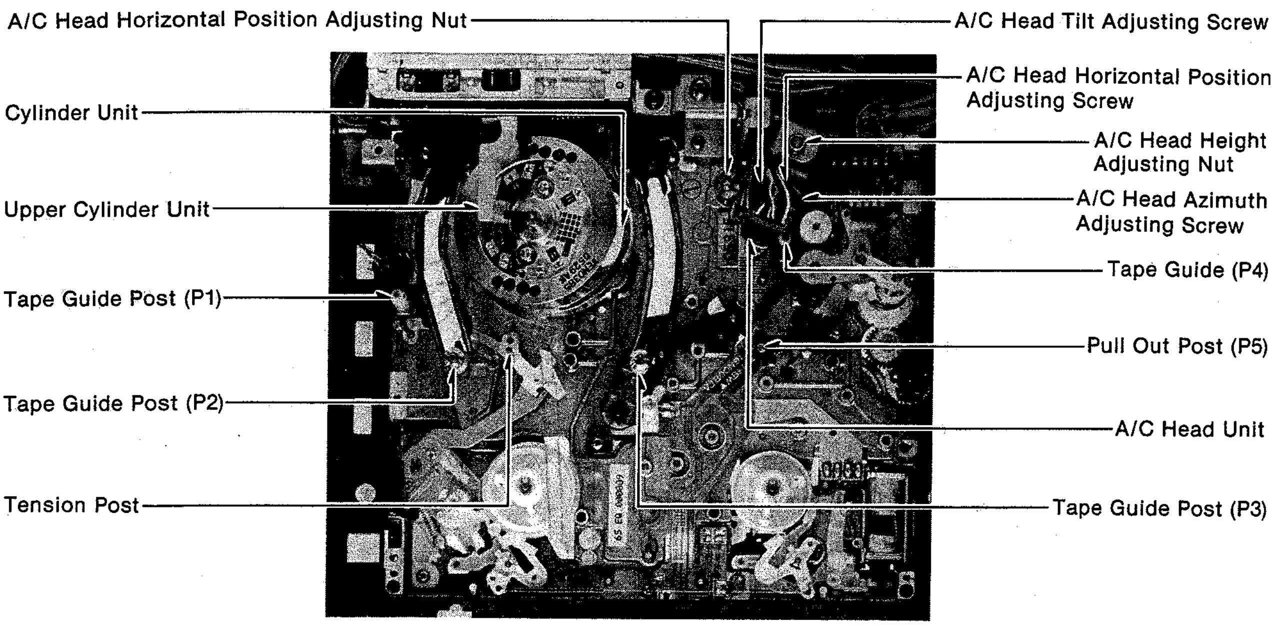

A/C Head Horizontal Position Adjusting Nut
A/C Head Tilt Adjusting Screw
Cylinder Unit
A/C Head Horizontal Position Adjusting Screw
A/C Head Height Adjusting Nut
Upper Cylinder Unit
A/C Head Azimuth Adjusting Screw
Tape Guide (P4)
Tape Guide Post (P1)
Pull Out Post (P5)
Tape Guide Post (P2)
A/C Head Unit
Tension Post
Tape Guide Post (P3)

Figure M6-2 Parts Location

4-2. ADJUSTMENT PROCEDURES

4–2–1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS (P2 and P3)

*Notes:

1. The Tape Guide Posts have been precisely adjusted at the factory.
   Therefore, normally do not change the height of the P2 and P3 Posts.
   The following adjustment is required only when replacing the posts.
2. To prevent the alignment tape from being damaged, use a normal cassette tape for this procedure.

***Tools and Equipment Required:**

Post Adjustment Plate....................VFK0191
Reel Table Height Gauge..................VFK0190
Post Adjustment Screwdriver..............VFK0329
L Type Adjustment Screwdriver............VFK0269

1. Remove the cassette compartment.
2. Place the Post Adjustment Plate over the reel tables. Confirm that the Post Adjustment Plate is firmly seated as shown in Figure M7.

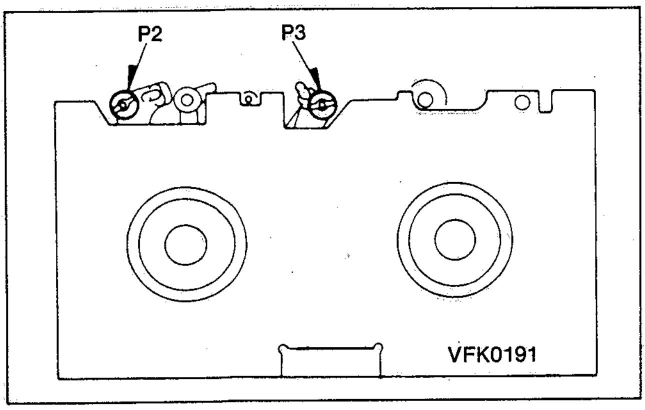


Figure M7

3. Lower 2 tape guide posts (P2 and P3) by turning the Post Adjustment screwdriver so that the condition of height becomes as shown in Figure M8. That is, the lower edge of Tape guide should be lower than surface of Adjustment Plate.

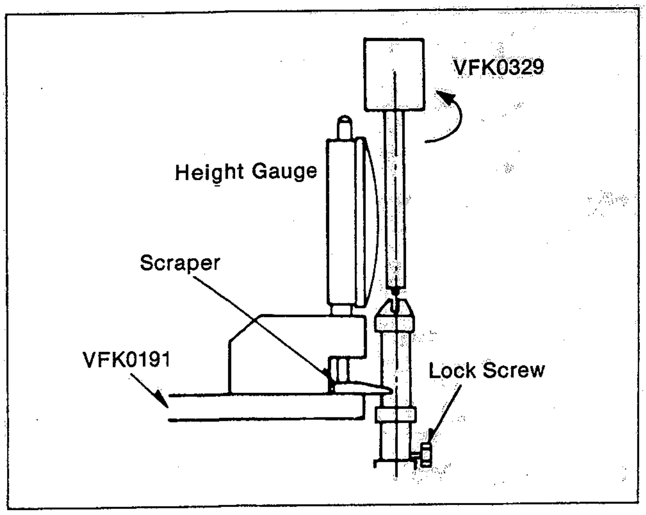


Figure M8

*Note:
Before turning P2 and P3 posts, slightly loosen the Lock Screw using the L Type Screwdriver.

4. Place the scraper of Reel Table Height Gauge as shown in Figure M9.
   Set the gauge to zero, then raise the post slowly until the lower tape guide just touches the bottom of the scraper. Use the gauge to determine the exact point at which the lower tape guide touches the scraper.

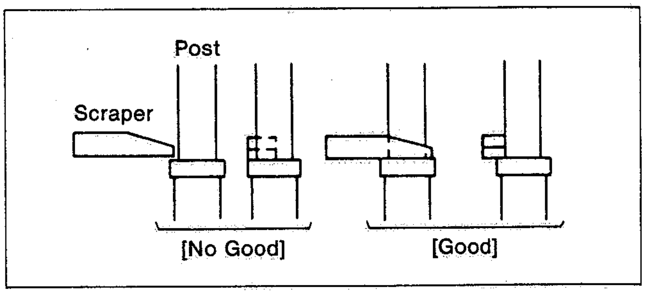


Figure M9

*Note:
After the adjustment, install the cassette compartment refering to Reinstllation of cassette compartment procedures.

4–2–2. ADJUSTMENTOF THE PULL–OUTPOST HEIGHT

***Tools and Equipment Required:**

Post Adjustment Plate....................VFK0191
Reel Table Height Gauge..................VFK0190
Nut Driver....................(Purchase locally)

* **Specification..................–0.06 +/– 0.01mm**

*Note:
Unless the replacement or adjustment this post is required, the adjustment nut should not be turned.

1. Remove the cassette compartment.
2. Place the Post Adjustment Plate over the reel tables.
3. Turn the Capstan Motor counterclockwise (loading direction) until the mechanical condition becomes as shown in Figure M10.

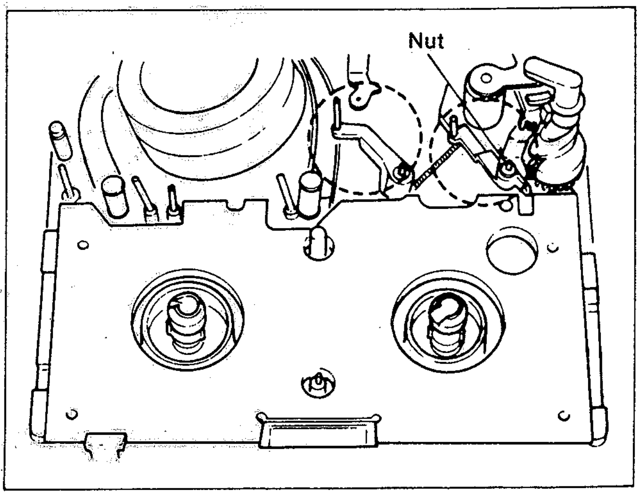


Figure M10

4. Place the Reel Table Height Gauge on the Post Adjustment Plate and set the gauge to zero "0" as shown in Figure M11.

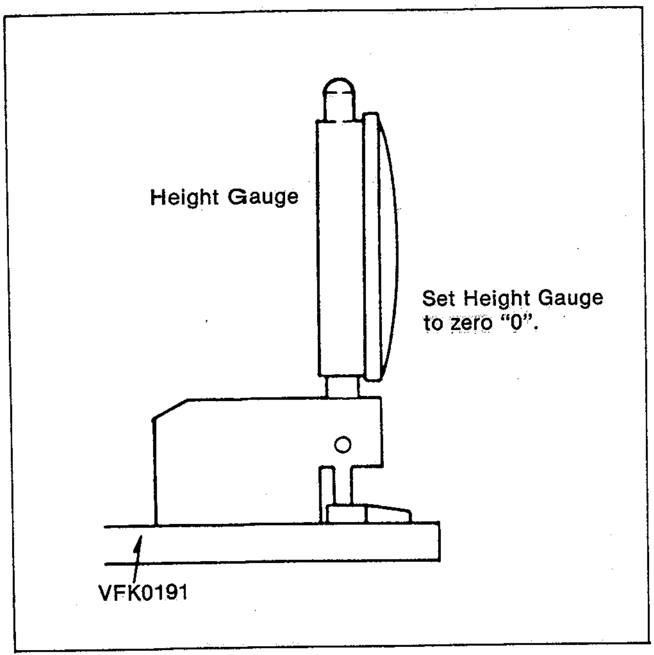

Height Gauge
Set Height Gauge to zero "0".
VFK0191

Figure M11

5. Place the Reel Table Height Gauge as shown in Figure M12 and turn the nut slowly until the gauge reads –0.06 +/– 0.01mm.

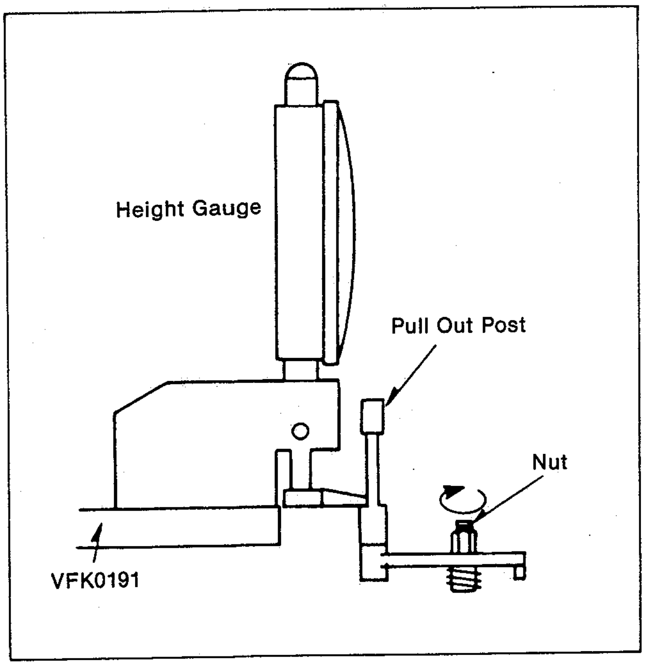

Height Gauge
Pull Out Post
Nut
VFK0191

Figure M12

6. After the adjustment, install the cassette compartment. (Refer to Reinstallation of Cassette Compartment procedures).
7. Play back a normal cassette tape and make sure that the edges of the tape are not curling at the bottom or top end of the posts P1, P2, P3, P4 and pull out post as shown in Figure M13 and M14.

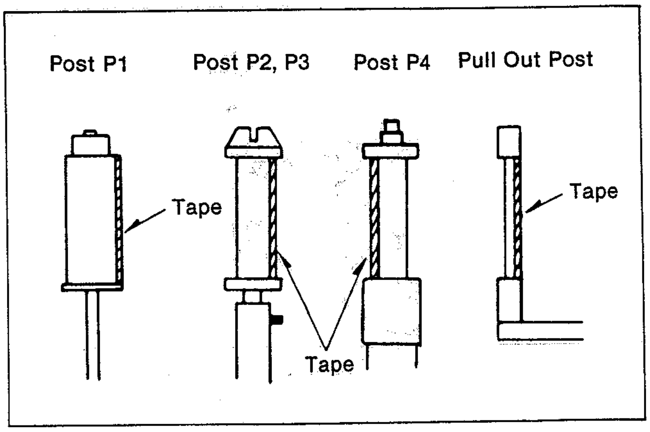

Post P1
Post P2, P3
Post P4
Pull Out Post
Tape
Tape
Tape

Figure M13

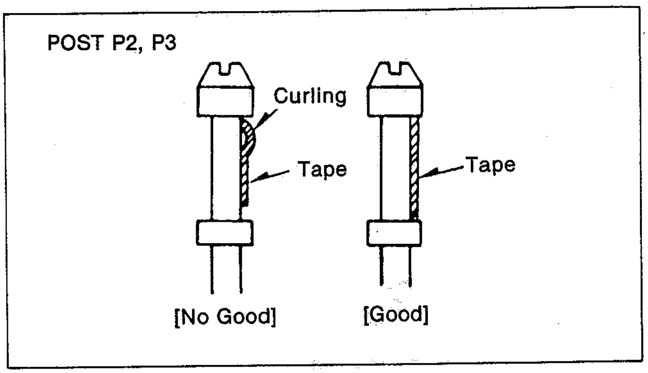

POST P2, P3
Curling
Tape
Tape
[No Good]
[Good]

Figure M14

8. If curling appears, readjusts each post (except P1, P4).

4–2–3. TILT& AZIMUTH ADJUSTMENT OF THE A/C HEAD

*Note:
This procedure should be performed only when the A/C Head is replaced and posts hight are readjusted.

***Equipment Required:**
Alignment Tape......................VFM8180HMDH
Check Light.............................VFK0343

1. Connect the oscilloscope to the audio output on the rear panel.
2. Play back the 2nd portion (Normal Audio10KHz) of the alignment tape (VFM8180HMDH).
3. Adjust the screw (J)(Figure M15) so that the output level becomes maximum as shown in Figure M16.
4. Adjust the screw (H)(Figure M15) so that the output level becomes maximum as shown in Figure M16.
5. Confirm that the tape runs around lower limiter of P4 post by using the Check Light.
6. If there is waving or frilling in the lower edge (Figure M17), then repeat step 3 to 4.

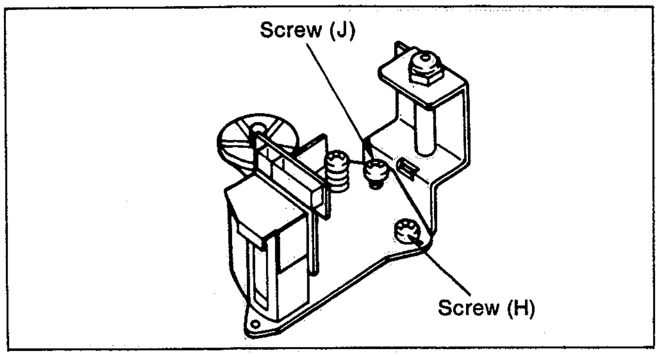


Figure M15

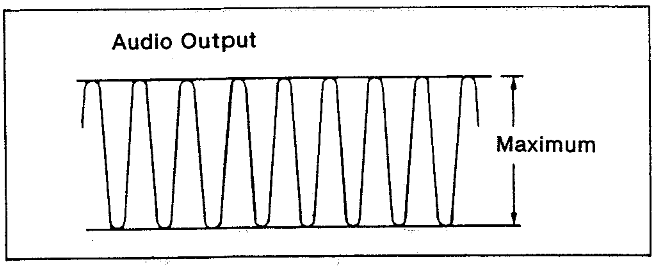


Figure M16

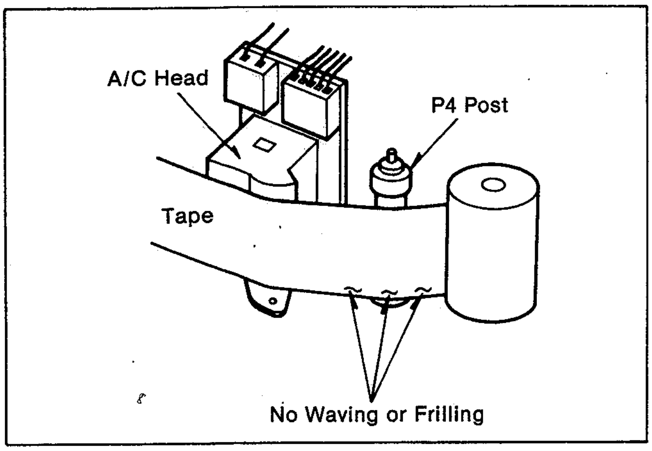


Figure M17

*Note:
After Tilt adjustment of A/C head, height adjustment of A/C head is required.

4–2–4. CONFIRMATION OF THEENVELOPE OUTPUT

***Tools and Equipment Required:**
Alignment Tape......................VFM8180HMDH
Post Adjustment Screwdriver.............VFK0329

*Note:
Before playing back the alignment tape, playback a normal cassette tape and confirm correct transport.

1. Connect the scope to test point of video FM envelope and test point of head switching pulse to Ext–Trigger the scope.
2. Playbackthe 1–st portion (Monoscope 1) of the alignment tape VFM8180HMDH.
3. Press the Tracking Control Button and adjust for maximum VIDEO FM envelope.
4. If the RF envelope appears like example "A" or "B" in Figure M18 then adjustment of the tape guide post (P2 : Entrance) is necessary.
5. Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown in Figure M18–"C".

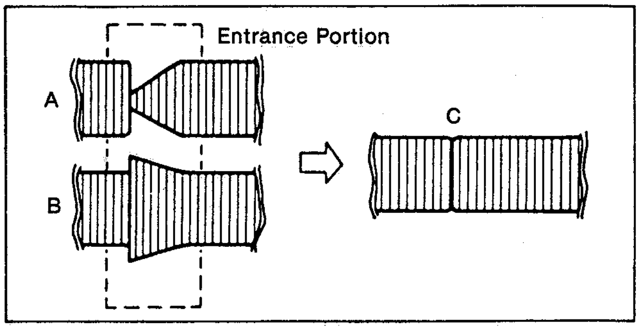


Figure M18

6. If the RF envelope appears like example "D" or "E" in Figure M19, then adjustment of the tape guide post (P3 : Exit) is necessary.
7. Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in Figure M19–"F".

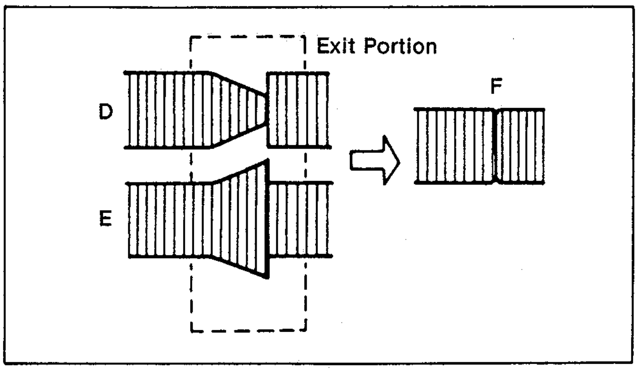


Figure M19

8. Press the (+) side and (–) side of Tracking Button simultaneously. The output envelope should vary nearly parallel with other condition as shown in Figure M20.
9. Press the Tracking Button into center fix position and adjust for maximum RF envelope.
If the RF envelope does not meet these specifications,

V1/V0>=0.7,V2/V0>=0.8,V3>=0.7

then repeat steps 1–9 again.

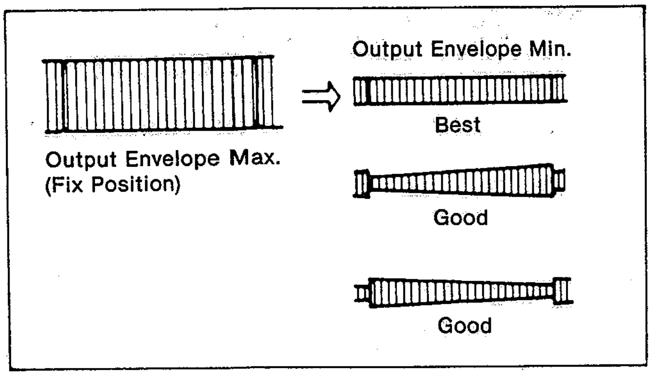


Figure M20

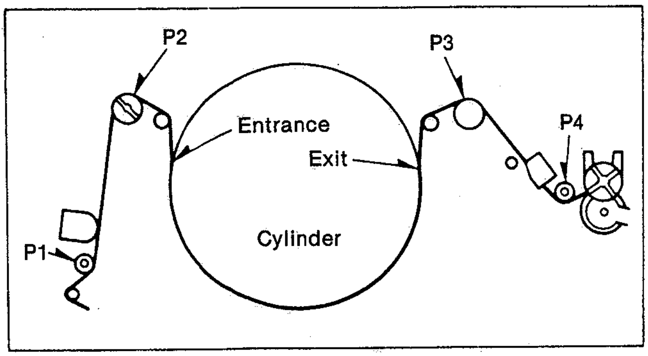


Figure M21 Loading of Posts

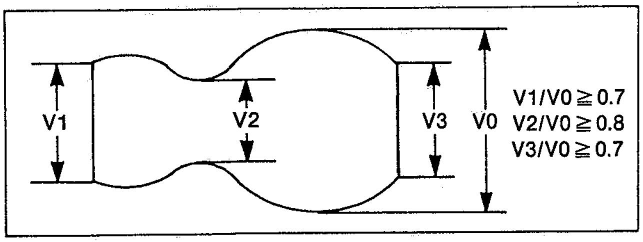


Figure M22 Spec. of Envelope Figure

4–2–5. COARSE ADJUSTMENT OFA/CHEAD HEIGHT

*Note:
This procedure should be performed only when the A/C Head is replaced.

***Tools and Equipment Required:**
Check Light..............................VFK0343
Nut Driver....................(Purchase locally)

With the tape running, look at the lower edge of the control head by using the check light and check if the lower edge of tape runs along the lower edge of the control head.
If it doesn't slightly turn the nut (K) behind the A/C Head (Figure M23) to either lower or raise the A/C head so that the tape runs along the lower edge of the control head.
Turn the nut (K) clockwise to lower the head, and counter–clockwise to raise it.

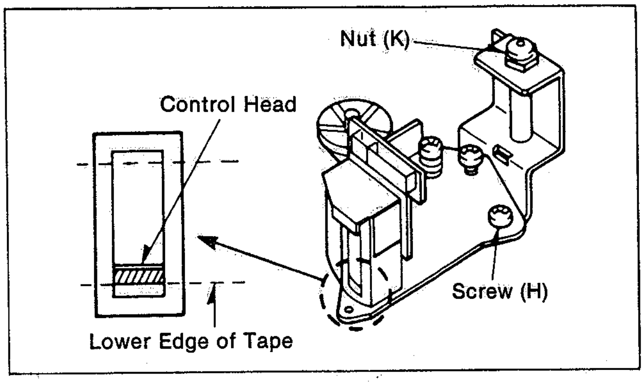


Figure M23

4–2–6. FINEADJUSTMENT OF THE A/CHEAD HEIGHT

*Note:
When the A/C head is replaced, the coarse adjustment of the A/C head height is required before performing this fine adjustment.

***Tools and Equipment Required:**
Alignment Tape......................VFM8180HMDH
NutDriver....................(Purchase locally)

1. Connect the oscilloscope to the audio output on the rear panel.
2. Play back the 2–nd portion (Normal Audio 10 KHz) of the alignment tape (VFM8180HMDH).
3. Adjust the nut (K)(Figure M23) so that the envelope becomes maximum.

4–2–7. COARSEADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION

*Note:
This procedure should be performed only when the A/C head is replaced, and after performing the tape interchangeability adjustment.

***Tools and Equipument Required:**
H–Position Adjustment Screwdriver........VFK0328
Alignment Tape......................VFM8180HMDH

1. Press the Tracking Control Button and fixed to center detent position.
2. Connect the scope to test point of video FM envelope and scope CH2 to the Audio Output on the rear panel.
3. Playback the 4–th position (Monoscope 3 and Audio / Every 10–th field is skipped) of the Alignment tape VFM8180HMDH.
4. Adjust A/C head horizontal position screw (Figure M24) so that the phase of audio drop out and video RF envelope drop–out becomes the same. (Figure M25)

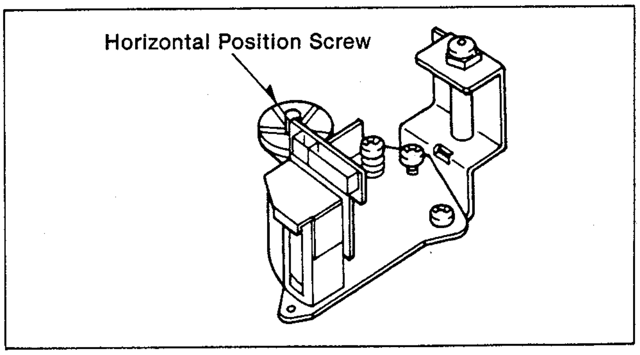


Figure M24

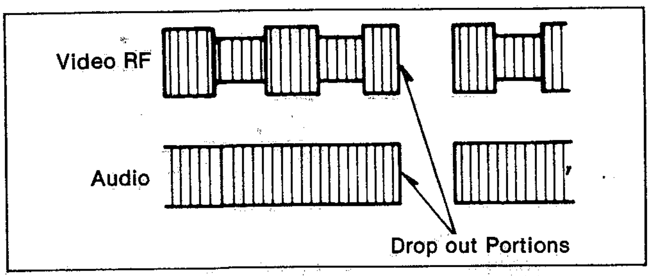


Figure M25 Horizontal position Adjustment of A/C Head

*Note:
After completion the fine adjustment of the A/C head horizontal position, the phase of Audio drop–out and Video RF envelope drop–out may be changed slightly.

4–2–8. FINE ADJUSTMENT OF THEA/CHEAD HORIZONTAL POSITION (X–VALUE)

*Note:
This procedure should be performed only when the A/C head is replaced, and after performing the tape interchangeability adjustment.

***Tools and Equipment Required:**
H–Position Adjustment Screwdriver........VFK0328
Alignment Tape.......................VFM8180HMDH

1. Press the Tracking Control Button and fixed to centre position.
2. Connect the oscilloscope to test point of video FM envelope.
3. Play back the 1–st portion of the alignment tape (VFM8180HMDH).
4. Adjust the Horizontal Position Screw of A/C head so that the RF signal becomes maximum level.

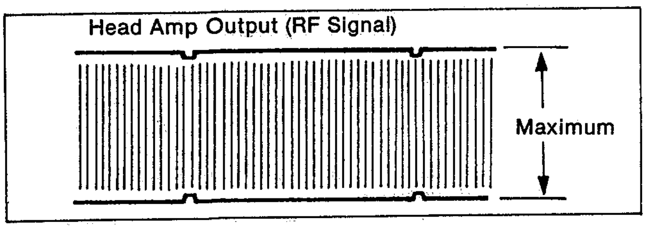


Figure M26

5. OTHER MECHANICAL ADJUSTMENT PROCEDURES

5-1. TENSION ADJUSTMENT OF TIMING BELT

***Equipment Required:**
Fan Type Tension Gauge.....................VFK66
***Specification...........................40 +/– 5g**

1. Loosen a screw (A) slightly by using the screwdriver.
2. Set the Fan Type Tension Gauge to the direction indicated by the arrow (B) as shown in Figure M27.
3. Tighten a screw (A) when the reading of the Fan Type Tension Gauge becomes within 40 +/– 5g.

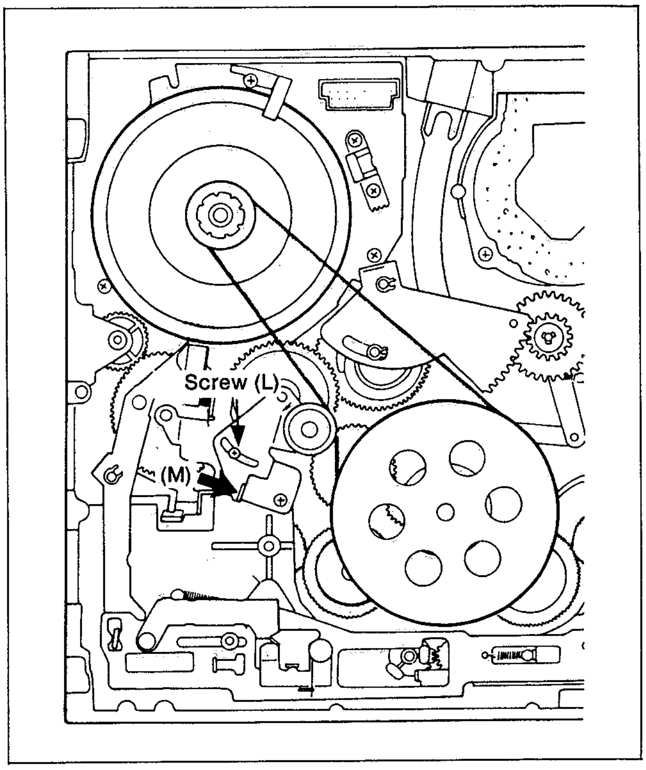


Figure M27

5-2. POSITION ADJUSTMENT OF TENSION POST

***Equipment Required:**
Tension Post Adjustment Plate............VFK0387
Hex. Wrench:2mm(Hex Wrench Set)..........VFK0326

1. Disconnect the AC plug.
2. Remove the cassette compartment.
3. Turn the Capstan Motor to the clockwise while the change lever is being pushed until the loading is completed as shown in Figure M28.

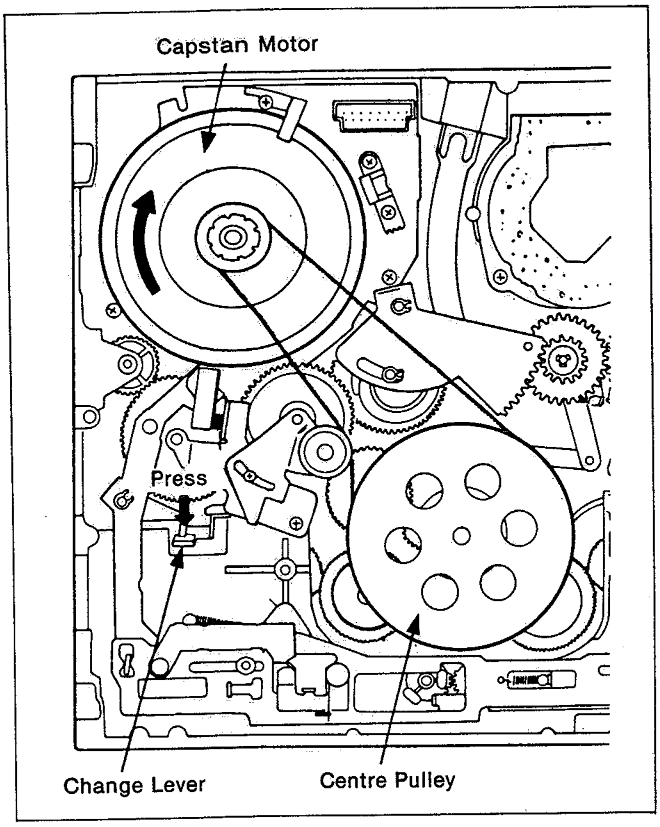

Capstan Motor
Press
Change Lever
Centre Pulley

Figure M28

4. Place the Adjustment Plate and insert the hex wrench into the hole of Tension Band Fastener as shown in Figure M29.
5. Adjust the Tension Band Fastener by using the hex wrench so that the Tension Post just touches the fixture of Adjustment Plate.
6. After the Adjustment, turn the Capstan Motor until the unloading is completed.

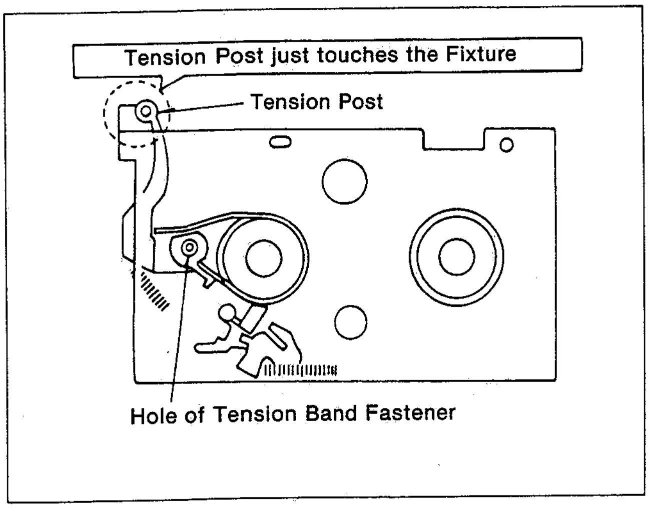

Tension Post just touches the Fixture
Tension Post
Hole of Tension Band Fastener

Figure M29

*Note: When you assemble cassette compartment, refer to "Reinstallation of Cassette Compartment".

5-3. MEASUREMENT AND ADJUSTMENT OF BACK TENSION

***Equipment Required:**
Back Tension Meter......................VFK0132
VHS Cassette Tape (120 minutes tape)
*specification..............................20~25g

1. Play back the cassette tape from the beginning and wait until the tape movement get the stabilization. (for approx. 10~20 seconds)
2. Insert the Back Tension Meter into the path of a tape, and measure the back tension to be within specification as shown in Figure M30.

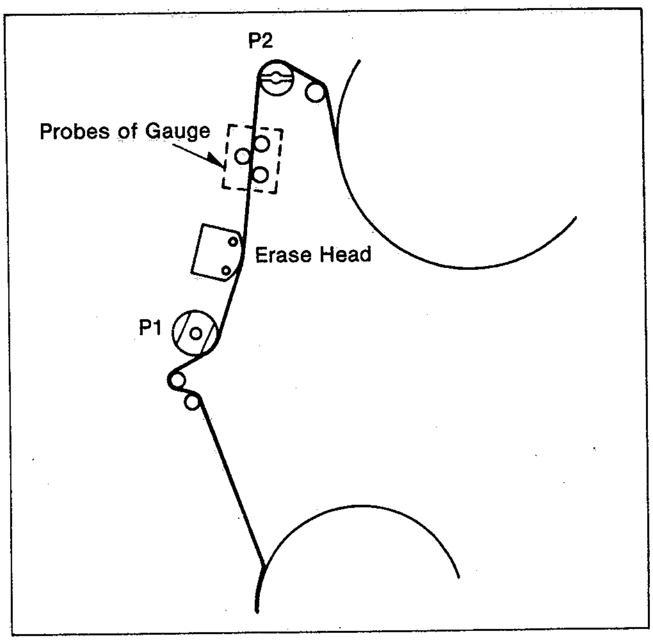

P2
Probes of Gauge
Erase Head
P1

Figure M30 Measurement of Back Tension

3. If it is out of specification, change the spring notch as shown in Figure M31.

*Notes:
1. While measuring, make sure that the three probes of the meter are all in good contact with the tape.
2. As the tension meter is very sensitive, we recommend taking 3 separate readings.

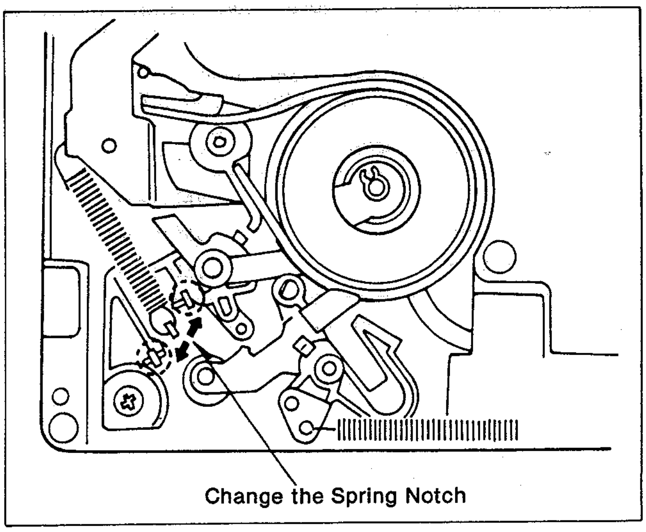

Change the Spring Notch

Figure M31

5-4. HEIGHT ADJUSTMENT OF THE REEL TABLES

***Equipment Required:**
Post Adjustment Plate....................VFK0191
Reel Table Height Gauge.................VFK0190
*Specification............................0 – 0.2mm

1. Remove the cassette compartment.
2. Place the Post Adjustment Plate on the reel tables.
3. Place the Reel Table Height Gauge on the plate so that the scraper of the gauge touches the cut–out portion of the plate, then set the gauge to zero "0" as shown in Figure M32.

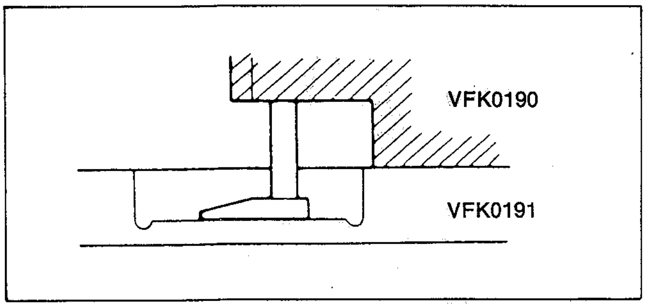


Figure M32

4. Measure the meter indication of top surface of reel table as shown in Figure M33. And then perform the same measurement and confirmation for the other reel table.

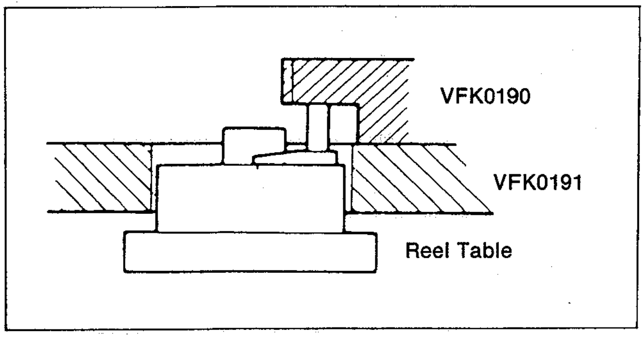


Figure M33

5. If the difference is more than 0.2mm higher or lower, replace or remove the poly–slider washer located under the reel table with one of the appropriate thickness. Reel washers are avilable in thickness of 0.2mm, 0.3mm and 0.5mm.

Washer Thickness	Parts No.
0.2mm	VMX1238
0.3mm	VMX1239
0.5mm	VMX1171

Figure M34

5-5. ADJUSTMENT OF THE CAPSTAN THRUST GAP

***Equipment Required:**
Reel Table Height Gauge.....................VFK0190
Height Adjustment Fixture................VFK0344
*Specification.........................0.5 – 0.55mm

1. Turn a Thrust Adjust Screw slightly until the capstan roter unit just touches the coil of the capstan stator unit.

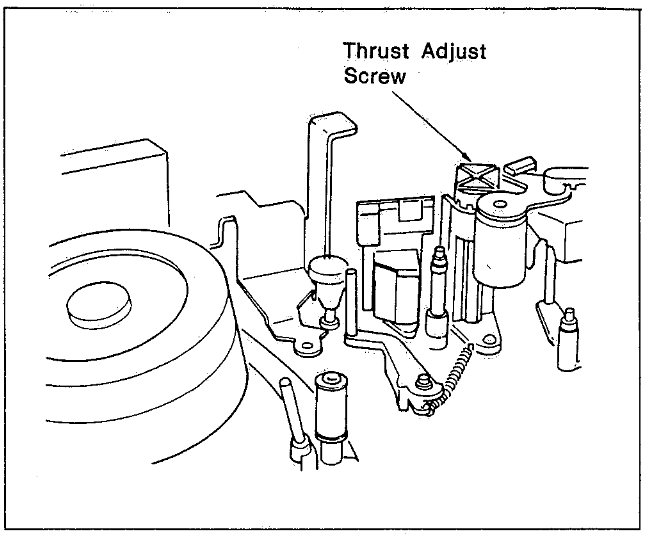


Figure M35

2. Set the Height Adjustment Fixture on the Capstan Roter unit.
3. Place the height gauge on the bottom case unit and set the height gauge to zero "0".

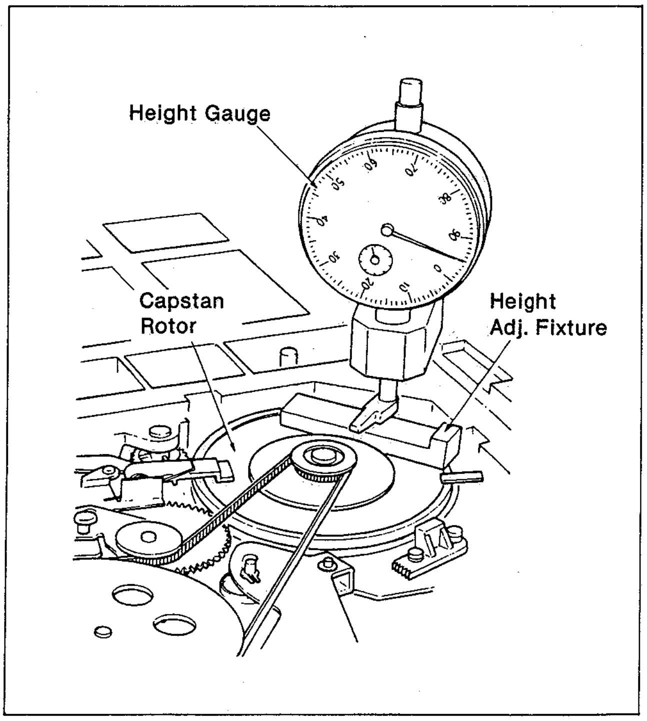


Figure M36

4. Adjust a Thrust Adjust Screw so that the thrust gap becomes 0.5 – 0.55mm.

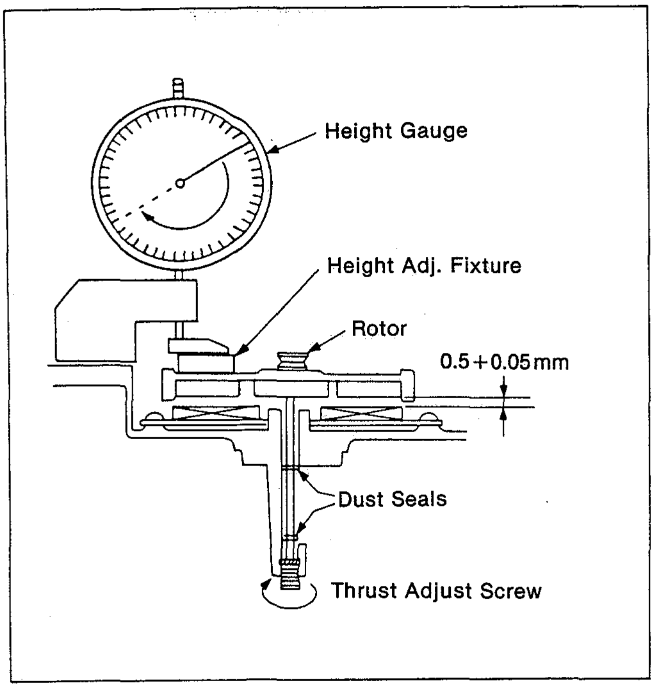

Height Gauge
Height Adj. Fixture
Rotor
0.5+0.05mm
Dust Seals
Thrust Adjust Screw

Figure M37

6. ASSEMBLY AND ADJUSTMENT PROCEDURES OF MECHANICAL

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch.
Therefore the relation between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on.
If these parts are not fixed properly, the unit will be unloaded or compulsorily stopped.
And it will result being damaged at any mechanical or electrical parts.
The overall mechanical condition (alignment) of bottom and top view are shown in Figure M38 and Figure M39. This mechanical adjustment is performed in STOP mode.

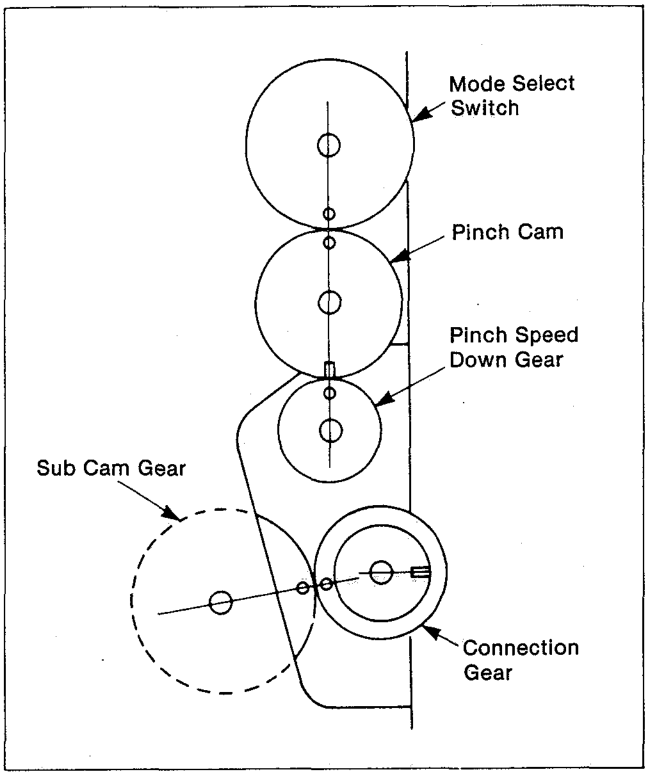
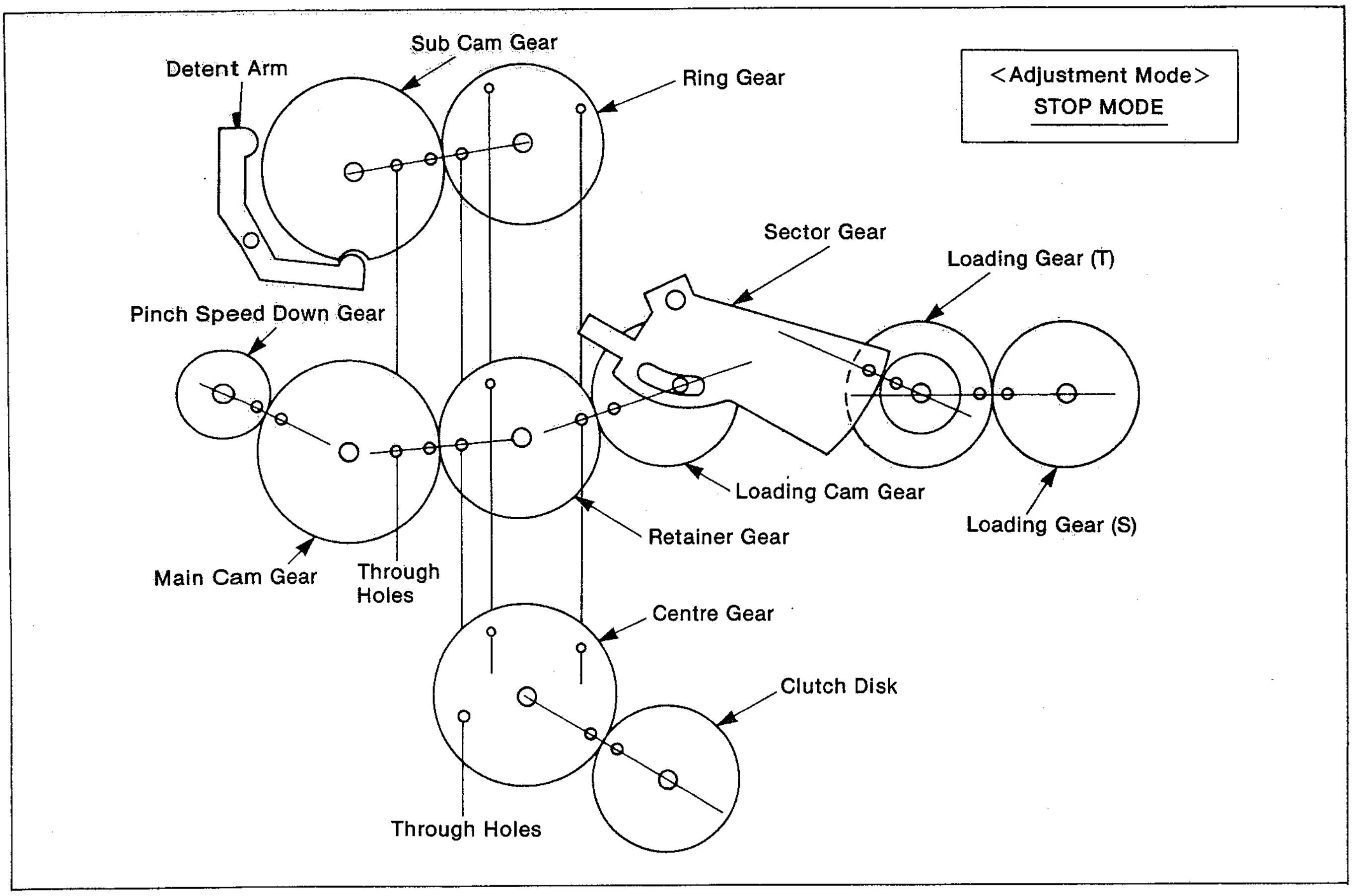

Mode Select Switch
Pinch Cam
Pinch Speed Down Gear
Sub Cam Gear
Connection Gear

Figure M38 Bottom View of Overall G-Mechanical Condition



Detent Arm
Sub Cam Gear
Ring Gear
<Adjustment Mode>
STOP MODE
Sector Gear
Loading Gear (T)
Pinch Speed Down Gear
Loading Cam Gear
Retainer Gear
Loading Gear (S)
Main Cam Gear
Through Holes
Centre Gear
Clutch Disk
Through Holes

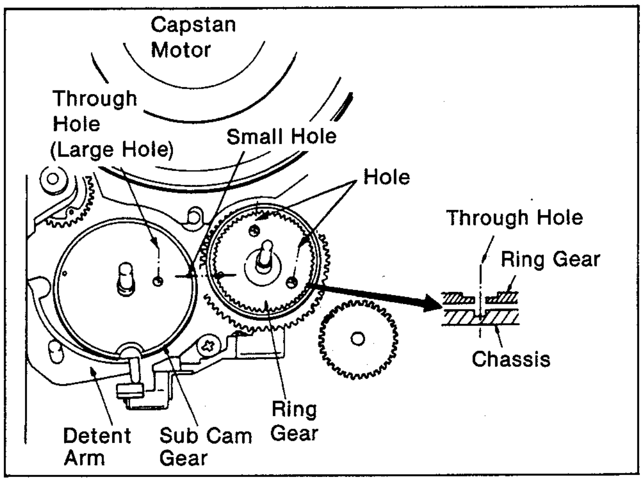
Figure M39 Top View of Overall Mechanical Condition

6-1. ASSEMBLY PROCEDURES OF SUB CAM GEAR, RING GEAR AND DETENT ARM

1. Install the Ring Gear so that the two holes in the Ring Gear align with the two holes in the chassis as shown in Figure M40.
2. Install the Sub Cam Gear so that the large hole in Sub Cam Gear is aligned with the hole in chassis. Also the small hole (located just outside of large hole) on Sub Cam Gear should align with the hole on Ring Gear as shown in Figure M40.

*Note: It may be best to also align Connection Gear (on top side) with Sub Cam Gear as shown in Figure M38.

3. Install the Detent Arm and make sure Detent Arm seats perfectly in detent of Sub Cam Gear as shown in Figure M40.



Capstan Motor
Through Hole (Large Hole)
Small Hole
Hole
Through Hole
Ring Gear
Chassis
Detent Arm
Sub Cam Gear
Ring Gear

Figure M40

6-2. ASSEMBLY PROCEDURES OF MAIN CAM GEAR AND PINCE SPEED DOWN GEAR

1. Install the Main Cam Gear onto the Sub Cam Gear so that the large hole on the Main Cam Gear aligns with large hole on the Sub Cam Gear and chassis as shown in Figure M41.
2. Install the Pinch Speed Down Gear from top side of chassis so that the outer hole on the Main Cam Gear aligns with small hole on the Pinch Speed Down Gear as shown in Figure M41.

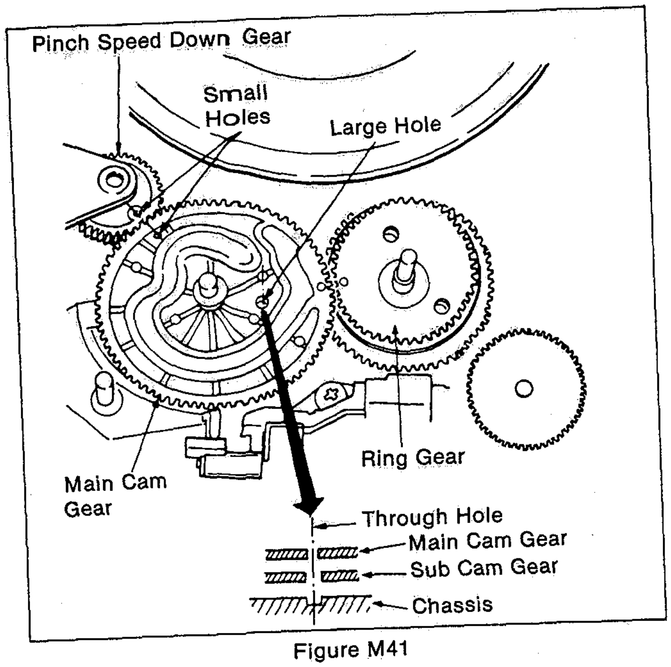

Pinch Speed Down Gear
Small Holes
Large Hole
Main Cam Gear
Ring Gear
Through Hole
Main Cam Gear
Sub Cam Gear
Chassis

Figure M41

6-3. ASSEMBLY PROCEDURES OF LOADING CAM GEAR AND RETAINER GEAR

1. Install the Retainer Gear onto the Ring Gear so that the two holes in the Retainer Gear align with the two holes in the Main Cam Gear, at this time, small indent outside of large hole on the Main Cam Gear should align with small hole on the Retainer Gear as shown in Figure M42.

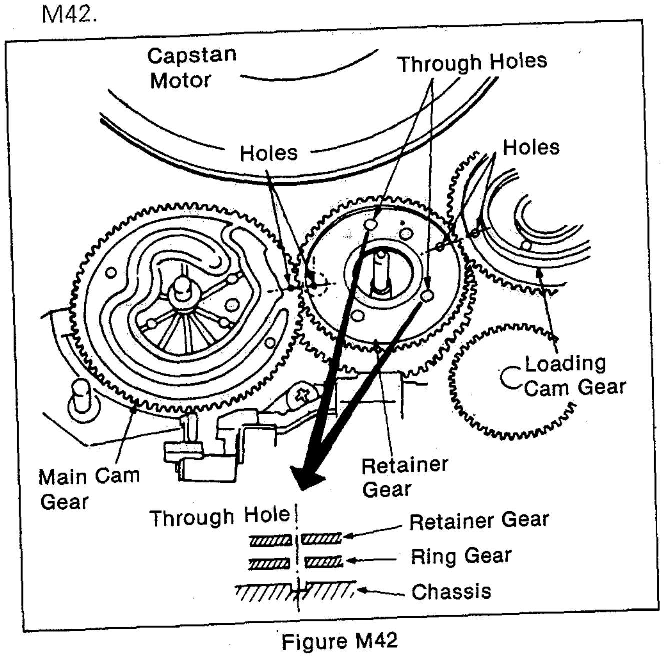

Capstan Motor
Through Holes
Holes
Holes
Loading Cam Gear
Main Cam Gear
Retainer Gear
Through Hole
Retainer Gear
Ring Gear
Chassis

Figure M42

2. Push the Sub Loading Arm to the STOP position and keep it as shown in Figure M43.
3. Install the Loading Cam Gear so that the small hole which is directly outside of the large hole on the Loading Cam Gear is aligned with the outside hole of the Retainer Gear as shown in Figure M42.

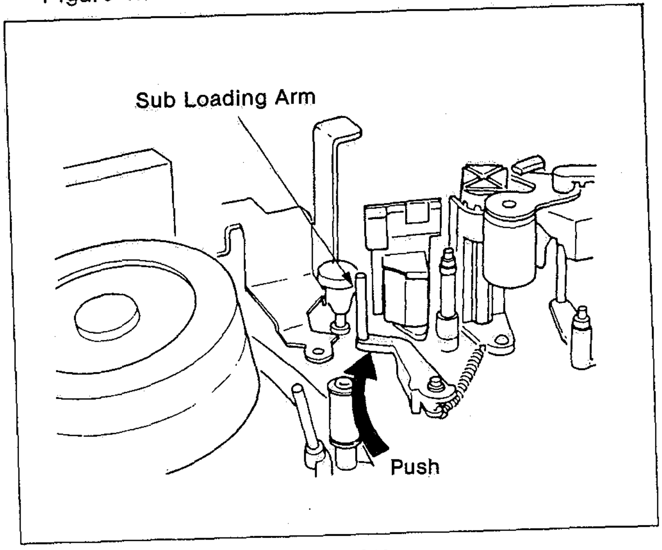

Sub Loading Arm
Push

Figure M43

6-4. ASSEMBLY PROCEDURES OF CENTRE GEAR

1. Install the Center Gear onto the Retainer Gear so that the two holes in the Center Gear align with the holes on the Retainer Gear, then install the cut washer as shown in Figure M44.
2. Install the Clutch Disk so that the small outside hole on the Center Gear aligns with the small outside hole on the Clutch Disk, then insert the cut washer as shown in Figure M44.
3. Install the Center Pully and cut washer.

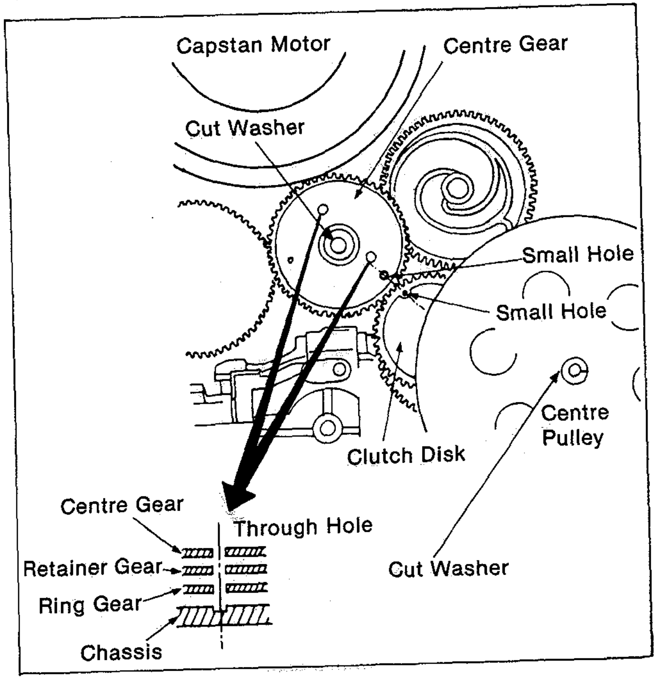

Capstan Motor
Centre Gear
Cut Washer
Small Hole
Small Hole
Centre Pulley
Clutch Disk
Centre Gear
Through Hole
Retainer Gear
Ring Gear
Chassis
Cut Washer

Figure M44

6-5. ASSEMBLY PROCEDURES OF MAIN LEVER (1) UNIT AND CAM FOLLOWER ARM UNIT

1. Install the Main Lever Unit so that the pins which are in the correct position as shown in Figure M45. The Main Lever Unit should seat perfectly without having to apply outside pressure, insert the cut washers.
2. Install the Cam Follower Arm so that the pin of the Cam Follower Arm inserts into the groove of the Main Cam Gear and also inserts into the slot on the Main Lever Unit, insert the retaining ring as shown in Figure M46.

*Note: Be careful not to bend Cam Follower Arm.

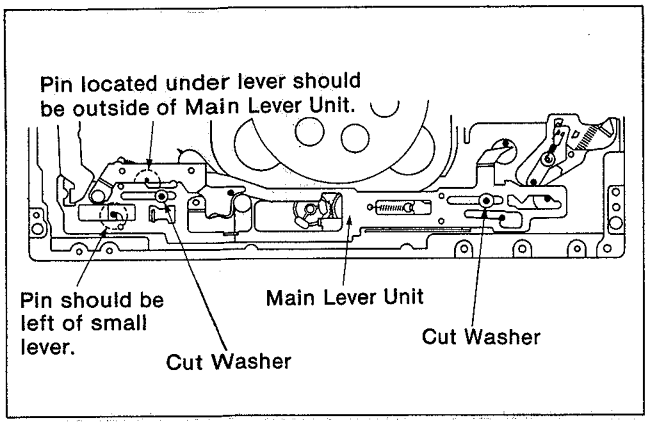

Pin located under lever should be outside of Main Lever Unit.
Pin should be left of small lever.
Main Lever Unit
Cut Washer
Cut Washer

Figure M45

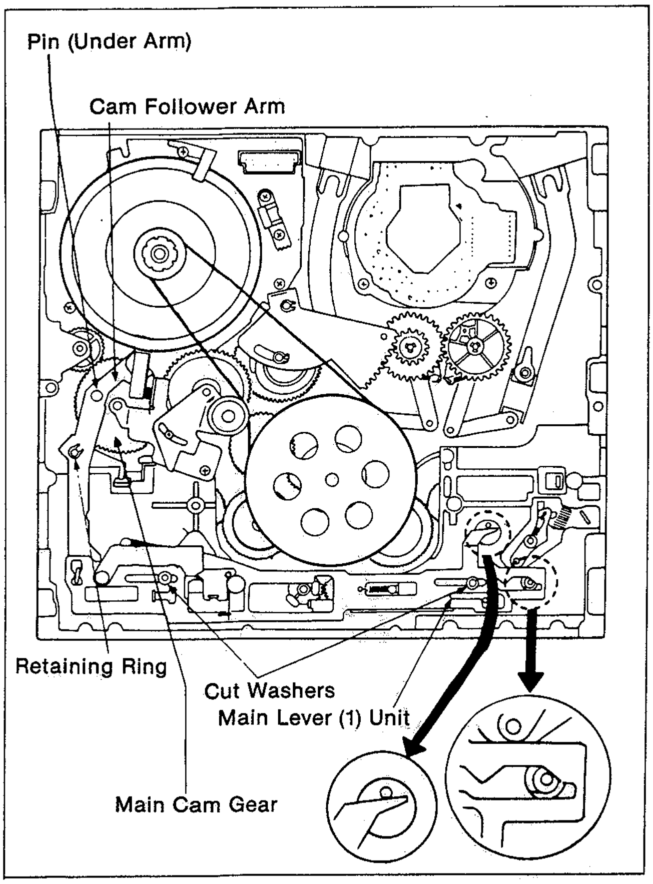

Pin (Under Arm)
Cam Follower Arm
Retaining Ring
Cut Washers
Main Lever (1) Unit
Main Cam Gear

Figure M46

6-6. ASSEMBLY PROCEDURES OF LOADING GEAR (T), LOADING GEAR (S) SECTOR GEAR, TENSION ROLLER

1. Set the P2 and P3 posts to fully unloaded position, then install the Loading Gear (T) and (S) so that the outer hole in the Loading Gear (T) aligns with the outer hole in the Loading Gear (S).(Figure M47)
2. Install the Sector Gear so that the outer hole in the Sector Gear aligns with the projection mark on Loading Gear (T). Then insert the retaining rings.(Figure M47)
3. Install the Tension Roller Unit and SS Brake Unit, then tighten the screws.
4. Install the Timing Belt.

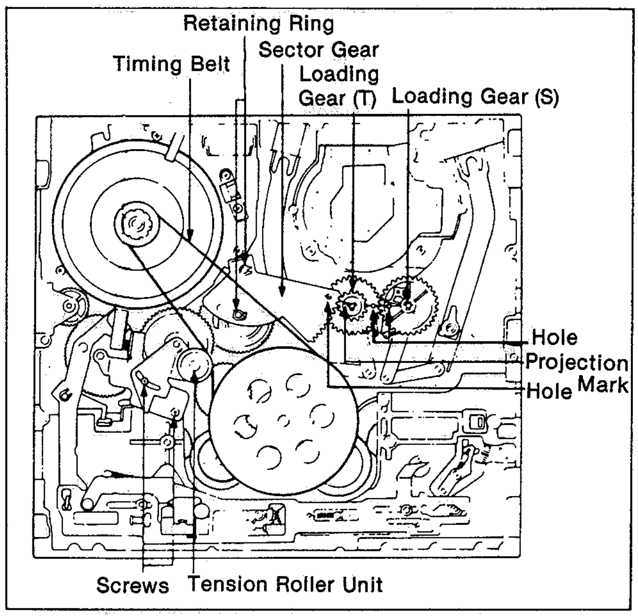

Retaining Ring
Timing Belt
Sector Gear
Loading Gear (T)
Loading Gear (S)
Hole
Projection Mark
Hole
Screws
Tension Roller Unit

Figure M47

6-7. ASSEMBLY PROCEDURES OF CONNECTION GEAR

*Note: Before assembling, Sub Cam Gear position (and positions of bottom side gears) must be correct as described before (STOP mode).

1. Install the Connection Gear so that the small hole in the Connection Gear aligns with the small hole in the Sub Cam Gear as shown in Figure M48.

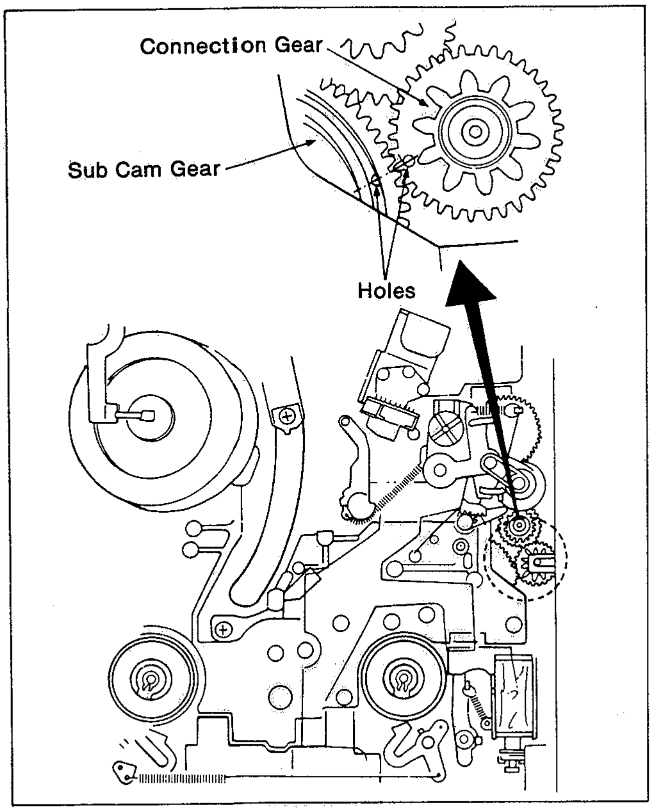

Connection Gear
Sub Cam Gear
Holes

Figure M48

6-8. ASSEMBLY PROCEDURES OF MODE SELECT SWITCH AND P5 PULL OUT SECTOR GEAR

1. Install the Mode Select Switch and tighten the mounting screw, then solder the 5 soldering portions.
2. Install the P5 Pull Out Sector Gear so that the hole of P5 Pull Out Sector Gear aligns with the tip of edge at P5 gear as shown in Figure M49.

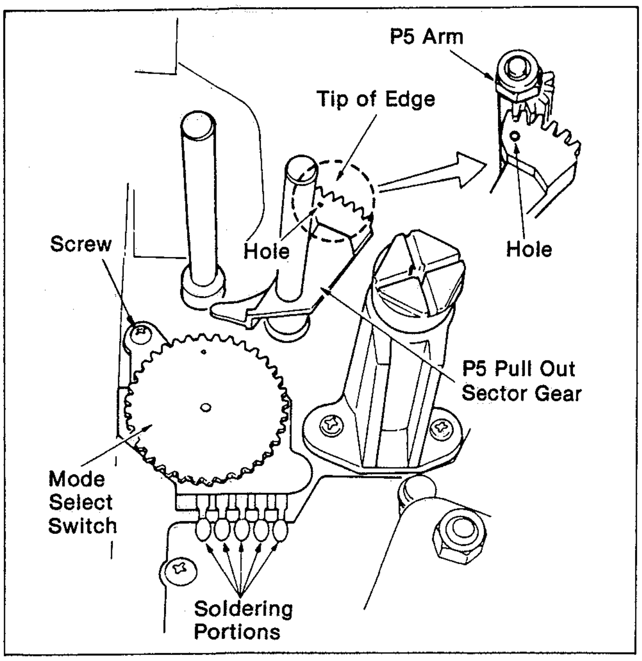

P5 Arm
Tip of Edge
Screw
Hole
Hole
P5 Pull Out Sector Gear
Mode Select Switch
Soldering Portions

Figure M49

6-9. ASSEMBLY PROCEDURES OF PINCE CAM AND PRESSURE POLLER UNIT

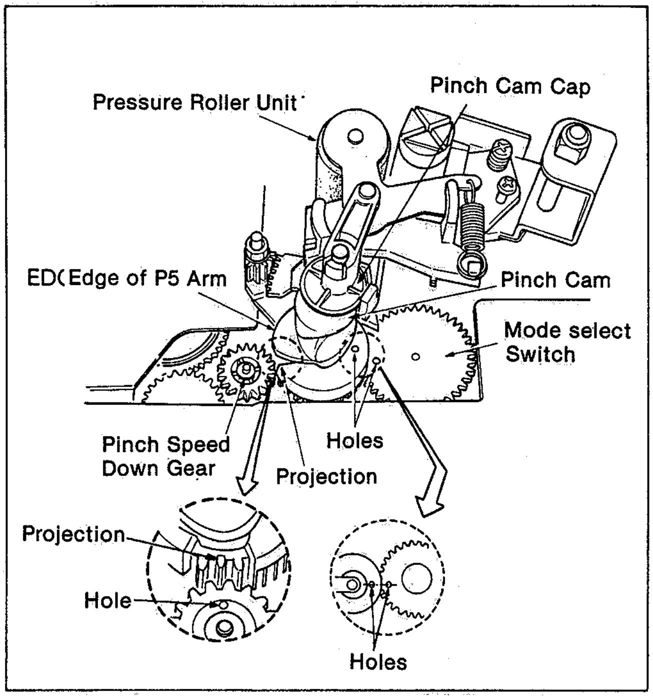

Pressure Roller Unit
Pinch Cam Cap
ED(Edge of P5 Arm
Pinch Cam
Mode select Switch
Pinch Speed Down Gear
Holes
Projection
Projection
Hole
Holes

Figure M50

1. Install the Pinch Cam while pushing the P5 post forwad. The Pinch Cam Gear should drop to a seated position. In this position make sure hole in the Mode Select Switch aligns with small hole on the Pinch Cam, also the small rift on the Pinch Cam should align with the hole on the Pinch Speed Down Gear as shown in Figure M50.
2. Install the Pressure Roller Unit. Make sure the seats perfectly onto the Pinch Cam, then install the Pinch Cam Cap.

6-10. REINSTALLATION OF CASSETTE COMPARTMENT

When you reinstall the cassette compartment, the position adjustment (alignment) of mechanism is necessary for correct operation, as follows.

A. Confirmation of STOP (Sub-Load) Position (Refer to Figure M39).

1. Press the change Lever in the direction indicated by arrow mark as shown in Figure M51 (to release the lock).
2. Turn the Capstan Motor counter—clockwise or clockwise until mechanism is placed into the STOP position as following conditions.

a) Identification hole on the Mode Select Switch at 6 o'clock position and aligned with small hole on Pinch Cam.
b) The projection on the Pinch Cam should align with small hole on Pinch Speed Down Gear.
c) Small hole on Sub Cam Gear should align with small hole on the Connection Gear and rectangular mark on the Connection Gear should be at a 3 o'clock position.

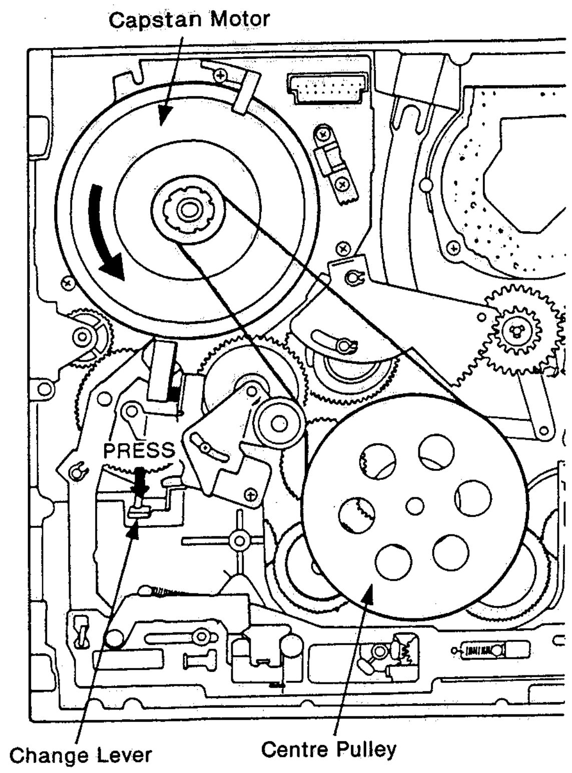
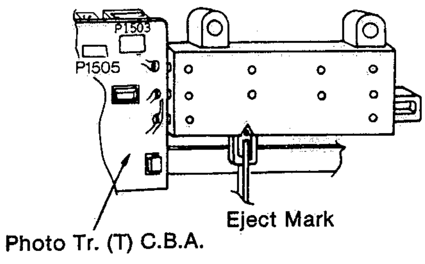


Figure M51



<Cassette Switch>

Figure M52

B. Confirmation of Cassette Compartment

1. Confirm that the Cassette Compartment is aligned properly. In the EJECT position (Cassette Holder up and advanced to the front) the two V–shaped marks on the slide switch should align. The slide switch is located on the right side of the Cassette Assembly towards the rear as shown in Figure M52.
2. Remove the 2 screws (A) as shown in Figure M53
3. Take the top plate out.
4. Take the cassette Holder unit out as shown in Figure M54.

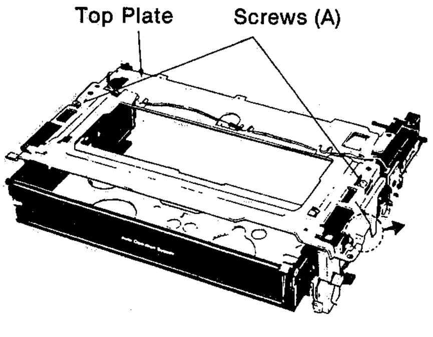


Figure M53

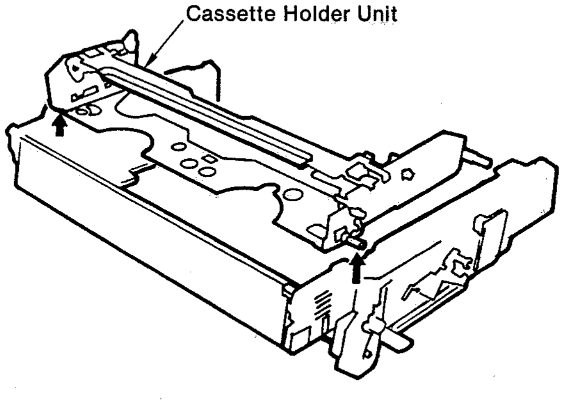


Figure M54 Remove of Cassette Holder Unit

5. Press the sub wiper arm (R) to direction indicated by arrow so that the sub wiper arm (R) comes to cassette down position (STOP) completely as shown in Figure M55 and keep it.
   In this position, the arrow on the Sub Wiper Arm(R) should align with the arrow on the Rack (A)(1) Unit as shown in Figure M56.

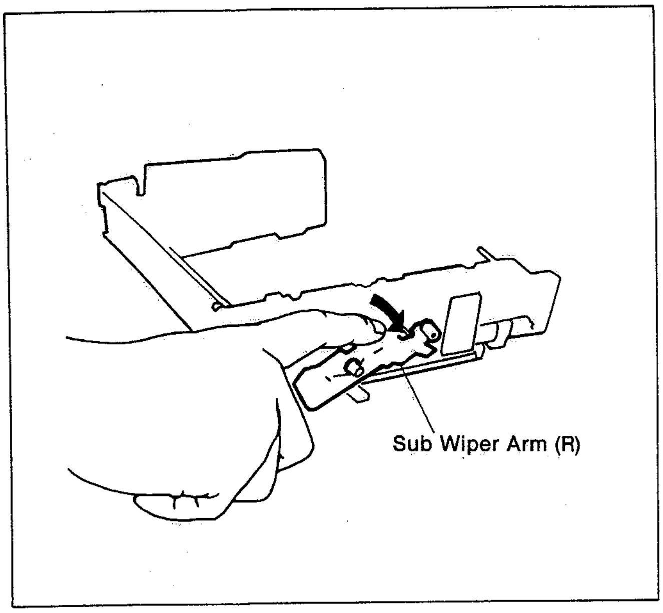

Sub Wiper Arm (R)

Figure M55

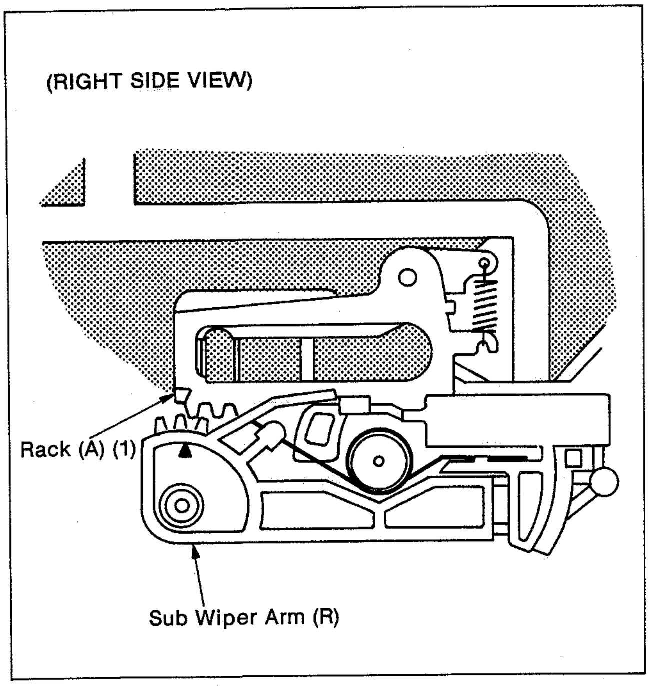

(RIGHT SIDE VIEW)
Rack (A) (1)
Sub Wiper Arm (R)

Figure M56

6. If the Cassette Compartment is not aligned, re–alignment may be accomplished by pushing the Main Shaft Unit to the right (gently) and pushing the front of the Rack Unit to the left. This procedure will disengage the theeth of the Rack Gear from the theeth on Sub Wiper Arm assembly. This will allow you to change the positional relationship between the Sub Wiper Arm Assembly and Rack Unit. This procedure is best attempted in the EJECT position. Once this is done, check for smooth operation of the compartment by inserting a cassette, and pushing in, and down.

C. Installation Procedure

1. Bring loading mechanism to the STOP (Sub Load) position.
2. Comfirm that the chassis is aligned properly for STOP position as shown in Figure M39 and M38.
3. Put the Sub Wiper Arm (R) in it's full down position (Sub Wiper Arm should rest on plastic protrusion on the bottom of the right side plat).
4. Install the cassette compartment (without cassette holder) to chassis so that the rectangular marking (or slot) on the connection gear should be line up with first tooth of the Rack Gear as shown in Figure M57 and M58.

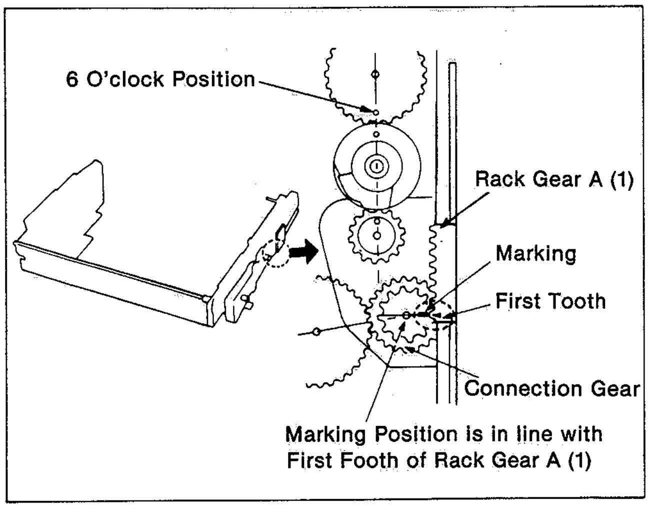

6 O'clock Position
Rack Gear A (1)
Marking
First Tooth
Connection Gear
Marking Position is in line with First Footh of Rack Gear A (1)

Figure M57

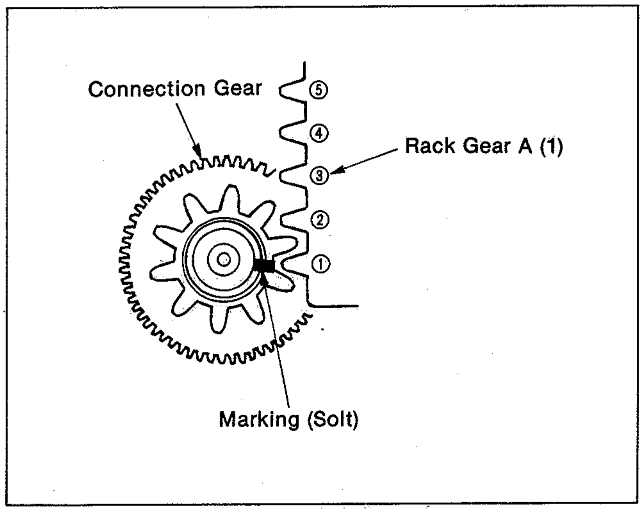

Connection Gear
⑤
④
③
②
①
Rack Gear A (1)
Marking (Solt)

Figure M58

5. Tighten the 4 screws (D) as shown in Figure M59.

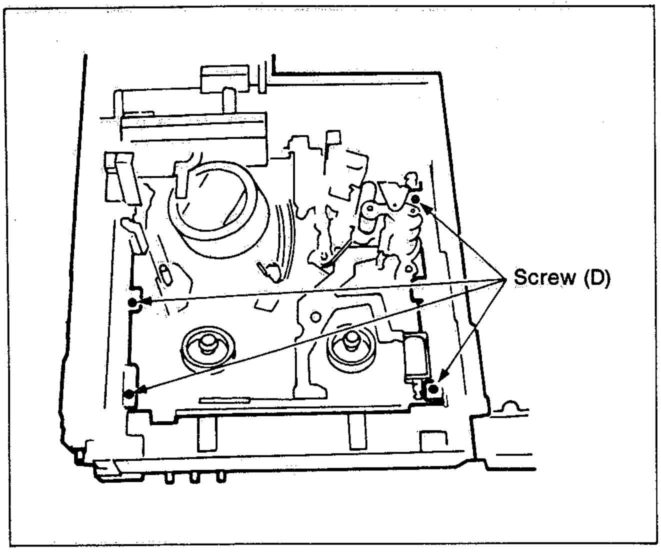


Figure M59

6. Press the Change Lever and manualy move the loading mechanism toward the EJECT position (Figure M51).
7. Stop the manual eject procedure just before completion, so that the Sub Wiper Arms straight up. This position is also characterized by the channel guides (In the Wiper Arms) being directly under the cut outs on the top of the Cassette Compartment base(Figure M60).
8. Install the Cassette Holder Unit in the Cassette Compartment Base. The Cassette Holder should drop into place if the Sub Wiper Arms are portioned as called for in step 7.

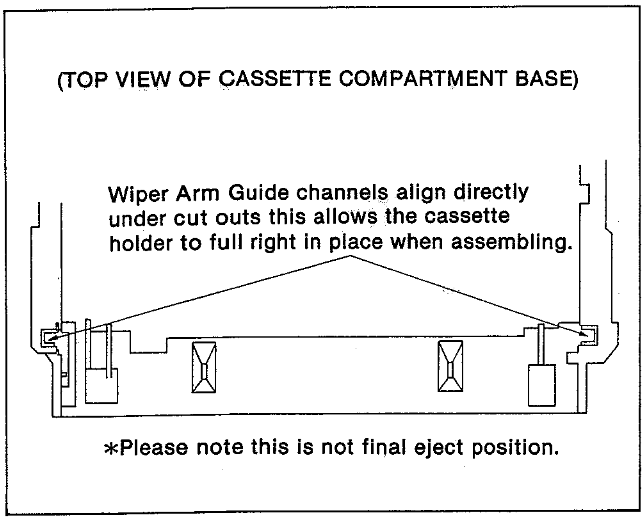

(TOP VIEW OF CASSETTE COMPARTMENT BASE)
Wiper Arm Guide channels align directly under cut outs this allows the cassette holder to full right in place when assembling.
*Please note this is not final eject position.

Figure M60

*Note: For proper front loading, the guide pin on the opener lever should follow the upper track of the right side panel as shown in Figure M61.

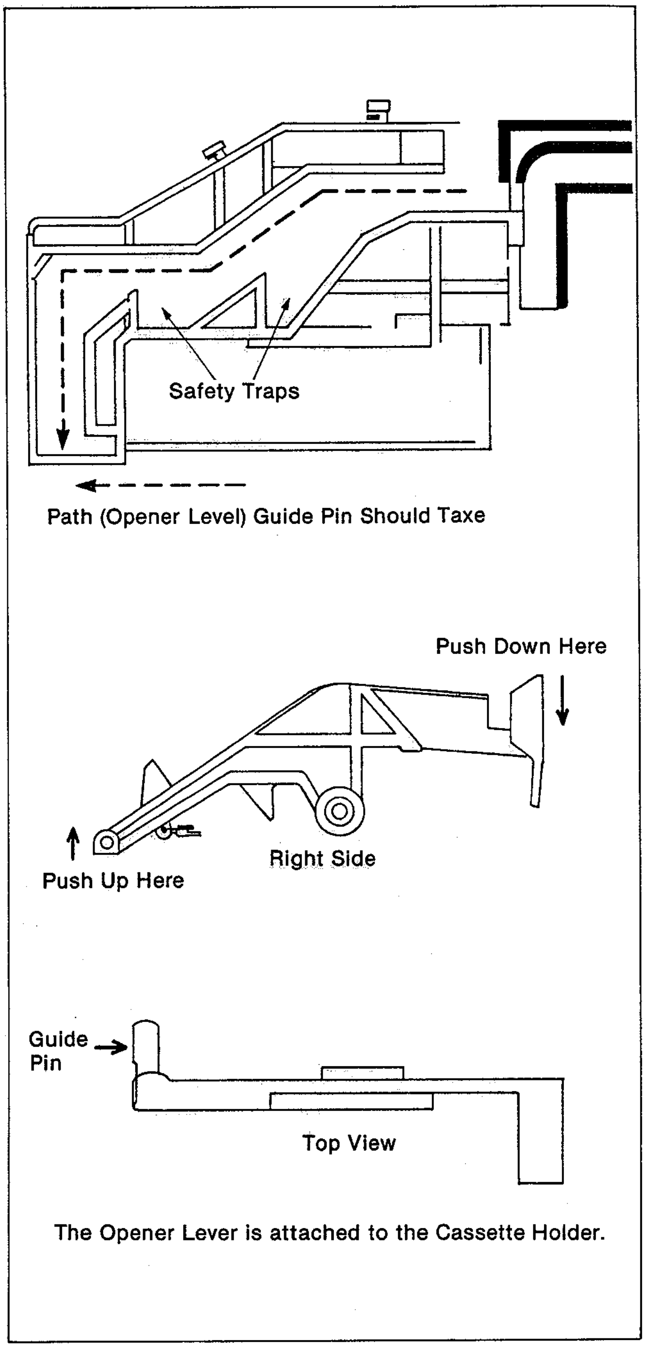

Safety Traps
Path (Opener Level) Guide Pin Should Taxe
Push Down Here
Push Up Here
Right Side
Guide Pin
Top View
The Opener Lever is attached to the Cassette Holder.

Figure M61 Right Side Plate

9. Install the top plate on the Cassette Compartment Base and tighten the 2 screws (A) as shown in Figure M53.
10. Manually confirm that front loading and main loading run smoothly. Also confirm EJECT before power is applied.

ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedures which may be required for electronic circuits of Time Lapse Video Cassette Recorder.

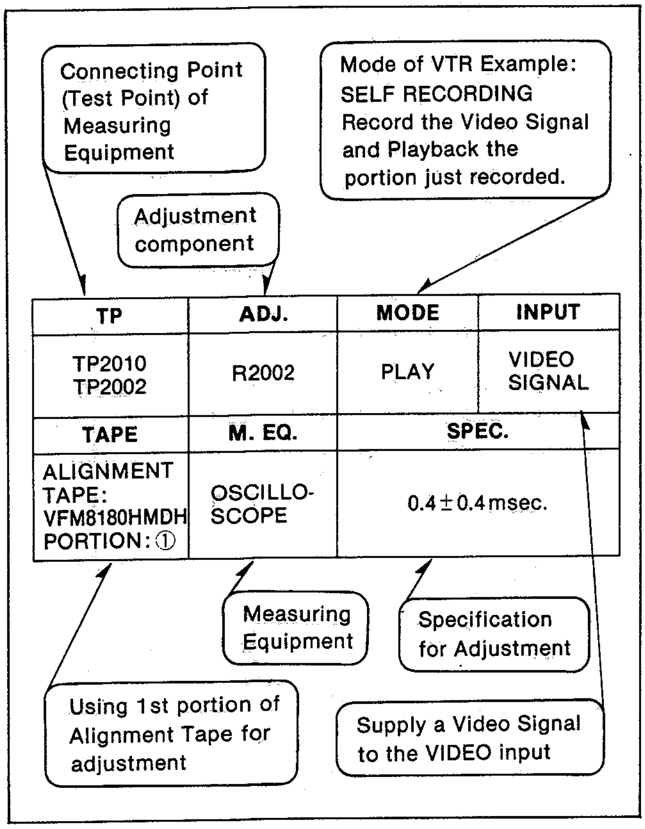
1. TEST & SERVICE EQUIPMENT

To perform the electrical adjustment completely, following equipments are required.

1. VTVM (Vacuum Tube Volt Meter) or DVM (Digital Volt Meter)
   Voltage Range: 0.001–50V
2. Dual–Trace Oscilloscope
   Voltage Range: 0.005–50V–div
   Frequency Range: DC–20MHz
   Probes: 10:1 or 1:1
3. Frequency Counter
   Frequency Range: 0–10MHz
4. Signal Generator (Sine wave)
   Frequency Range: 0–10MHz
5. Video Sweep Generator
   Frequency Range: 0–10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. Spectrum Analyzer
9. Video Signal Generator
10. VHS Alignment Tape (VFM8180HMDH)

2. ADJUSTMENT PROCEDURES

2-1. HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Mode of VTR Example: SELF RECORDING Record the Video Signal and Playback the portion just recorded.
Adjustment component
Measuring Equipment
Specification for Adjustment
Using 1st portion of Alignment Tape for adjustment
Supply a Video Signal to the VIDEO input

TP	ADJ.	MODE	INPUT
TP2010 TP2002	R2002	PLAY	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE: VFM8180HMDH PORTION: ①	OSCILLO-SCOPE	0.4±0.4msec.	

Figure E1

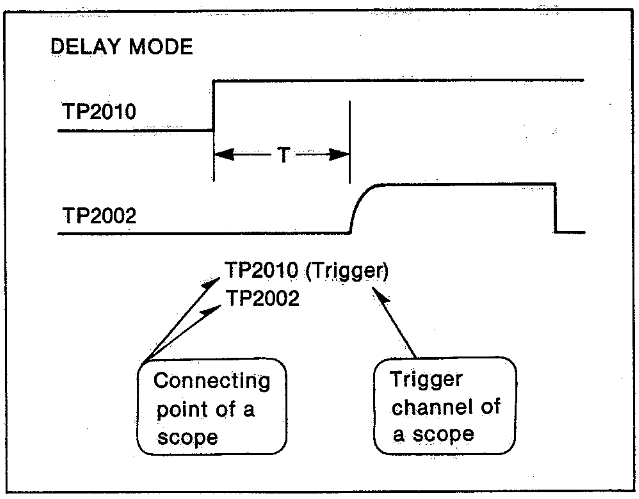

DELAY MODE
TP2010
T
TP2002
TP2010 (Trigger)
TP2002
Connecting point of a scope
Trigger channel of a scope

Figure E2

Note:
Before the electrical adjustment, set the Time rapes VCR as following conditions except for especial instructions in each adjustment item.

1) Picture Sharpness Control..... Centre Fix Position
2) Tape Speed....................3H Position
3) Auto / BW Switch.............Auto Position
4) T/D Switch....................OFF Position

2-2. SERVO SECTION

2-2-1. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2003 TP3002	VR2004	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
VFM8180HMDH POSITION: ②	OSCILLO-SCOPE	T=6.5±0.5H	

Note:
This adjustment should be performed only after completion of the tape interchangeability adjustment.

1. Adjust the Tracking VR on Timer C.B.A. so that envelope level becomes maximum.
2. Play back the alignment tape.
3. Adjust VR2004 so that the falling edge of switching pulse becomes 6.5H +/– before the V–SYNC portion.

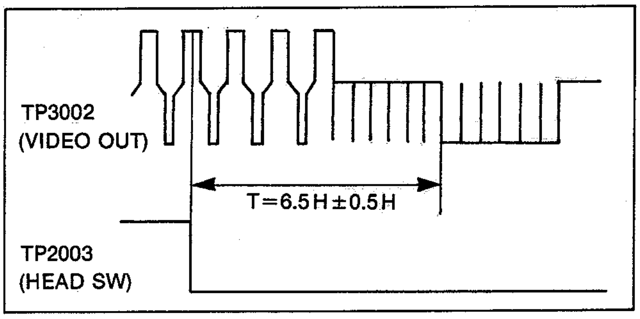

TP3002 (VIDEO OUT)
T=6.5H±0.5H
TP2003 (HEAD SW)

Figure E3

2-2-2. ARTIFICIAL V-SYNC ADJUSTMENT

TP	ADJ.	MODE	INPUT
	VR4502	REC • PLAY ↓ PLAY	MONO SCOPE SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	TV MONITOR		

1. Record mono—scope pattern signal and play back the recording portion.
2. Place the deck in still mode.
3. Adjust the ADV switch on the Timer C.B.A. so that the noise bar appears the TV monitor screen lower.
4. Adjust the VR4502 on the Jack Pack C.B.A. so that the V—dancing does not appear on the TV monitor screen.

2-3. VIDEO SECTION

2-3-1. OSD AGC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3202	VR3201	STOP (E-E)	COLOUR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	2.0±0.1Vp-p	

Note:
Slowly turn the adjustment VR.

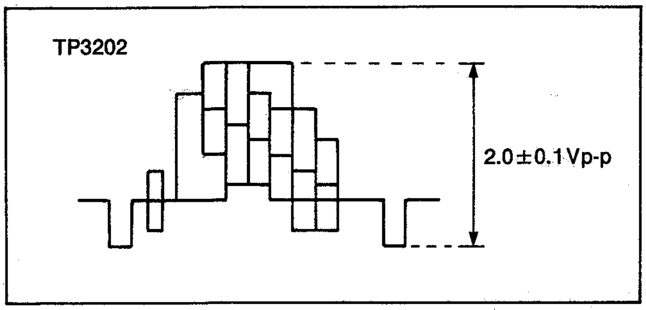


Figure E4

2-3-2. TIME DATE GENERATOR WORD SIZE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3201	CT3201	STOP (E-E)	
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	A=20±0.5μsec.	

Note:
Set the Time Date Generator Function as shown in below.

Time Date (T/D) Switch........."ON" position

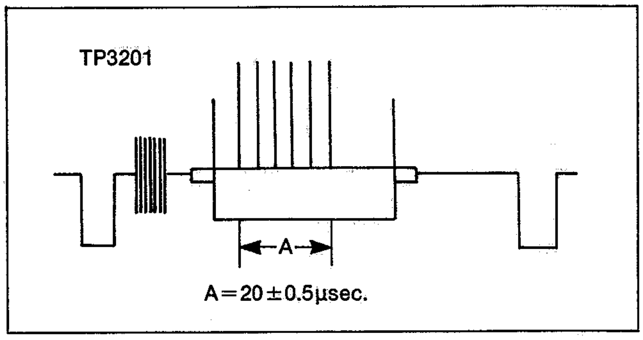


Figure E5

2-3-3. VIDEO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP507 (HOT) TP508 (GND)	VR501 (REC-Y) VR502 (REC-C)	REC • PLAY	COLOUR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	REC-C: 32±2mVp-p REC-Y: 130±5mVp-p	

1. Connect the scope to TP5707 (HOT) and TP508 (GND).
2. Turn VR501 (REC—Y) to eliminate the Y recording current.
3. Adjust the VR502 (REC—C) Non the Head Amp C.B.A. so that the cyan level is 32 +/− 2mVp—p.
4. Adjust the VR501 (REC—Y) on the Head Amp C.B.A. so that the Y recording current at sync tip portion is 130 +/− 5mVp—p.

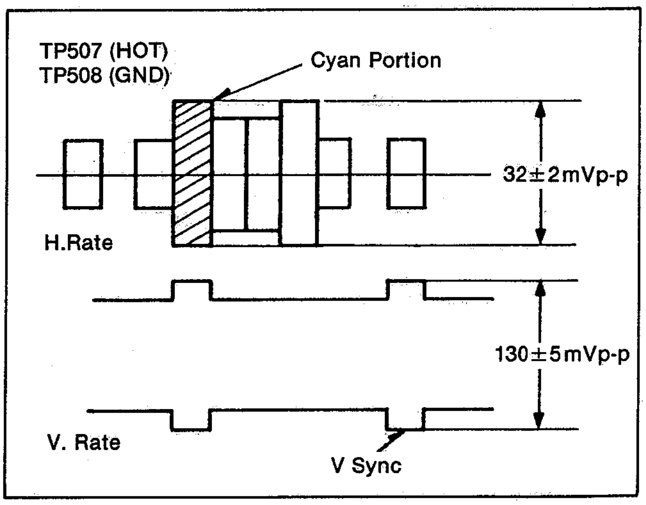
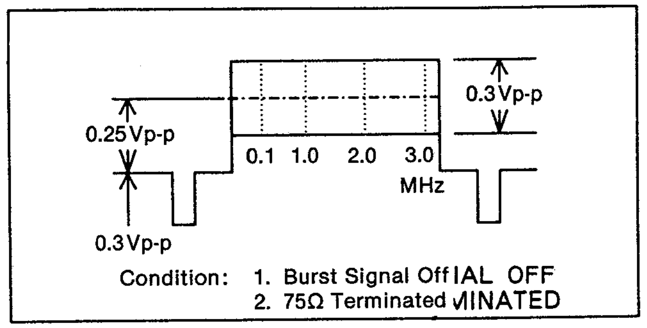


Figure E6

2-3-4. HEAD AMP FREQUENCY CHARACTERISTICS ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002 (VIDEO OUT)	VR3001	REC • PLAY ↓ PLAY	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	100kHz : 2MHz=$5:5^{+0}_{-1}$	

1. Set the sweep generator as shown in below.


0.25Vp-p
0.1 1.0 2.0 3.0
MHz
0.3Vp-p
0.3Vp-p

Condition: 1. Burst Signal Off IAL OFF
2. 75Ω Terminated ⅥINATED

Figure E7

2. Record the video sweep signal and play back the recording portion.
3. Adjust the VR3001 on the Main C.B.A. so that the portion A and B of the waveform becomes A:B (100KHz:2MHz)=5:5 +/− 01.

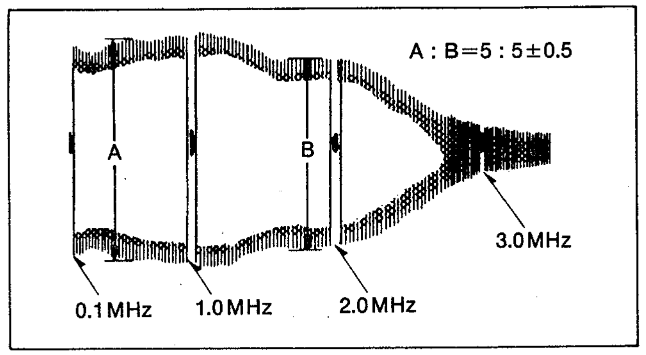

A : B=5 : 5±0.5
A
B
3.0MHz
0.1MHz
1.0MHz
2.0MHz

Figure E8

2-3-5. Y NR BALANCE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3301	VR3302	REC • PLAY ↓ PLAY	COLOUR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	LESS THAN 50mVp-p	

1. Connect a 100PF capacitor to TP3301 as shown in Figure E9.

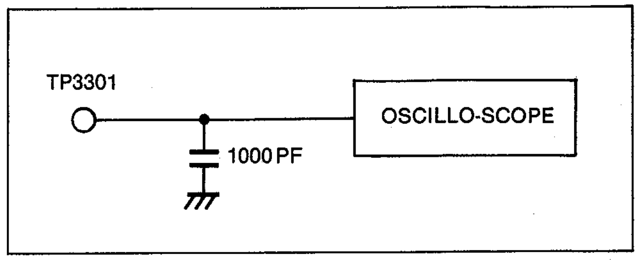

TP3301
1000PF
OSCILLO-SCOPE

Figure E9

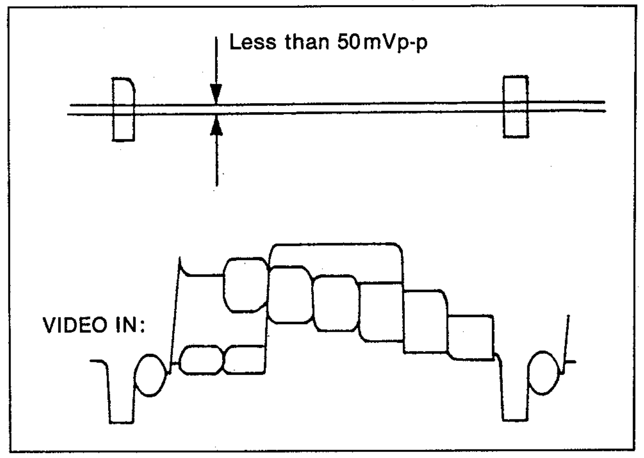
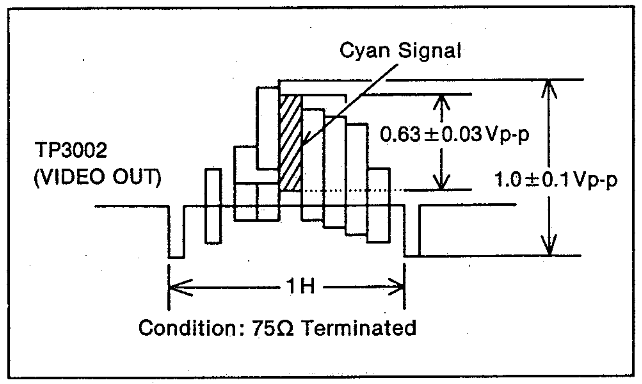

Less than 50mVp-p
VIDEO IN:

Figure E10

2-3-6. PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002 (LINE OUT)	VR3803	REC • PLAY ↓ PLAY	COLOUR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	Y-LEVEL=1.0±0.1Vp-p C-LEVEL=0.63±0.03Vp-p	


Cyan Signal
TP3002
(VIDEO OUT)
0.63±0.03Vp-p
1.0±0.1Vp-p
1H

Condition: 75Ω Terminated

Figure E11

2-4. AUDIO SECTION

2-4-1. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT) TP4003 (GND)	VR4002	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK	V.T.V.M	2.2±0.1mVrms	

Note:
Connect a jumer wire between Audio input and GND.

2-4-2. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
AUDIO OUT (TP4001)	VR4001	REC±PLAY ↓ PLAY	1kHz, −10dB AUDIO SIGNAL/ COLOUR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANC	SINE WAVE GENERATOR /V.T.V.M	P.B LEVEL= E-E LEVEL ±0.5dB	

Note:
Before this adjustment "Tape Interchangeability Adjustment" and "Audio Bias Current Adjustment" must be completed.

2-5. TIMER SECTION

2-5-1. TIMER REFERENCE CLOCK (1) ADJUSTMENT

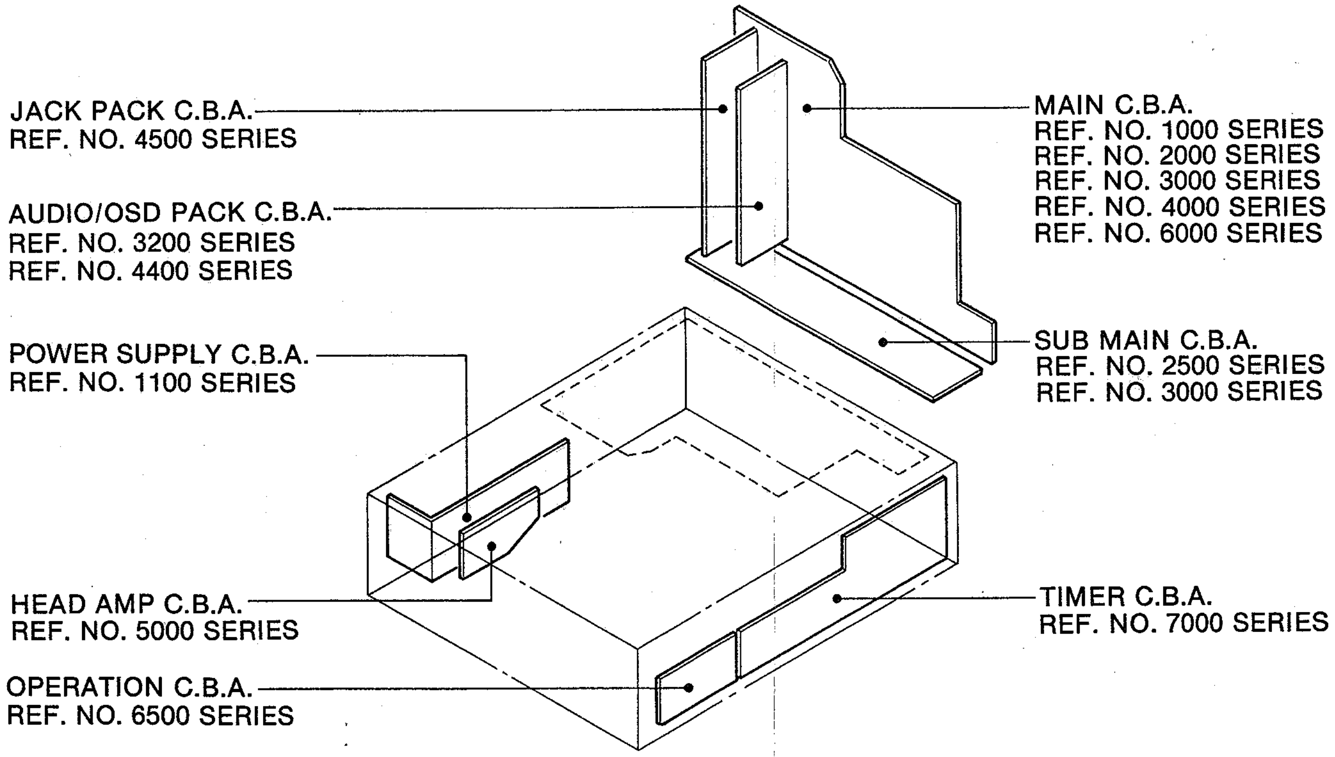
TP	ADJ.	MODE	INPUT
TP7001	C7006	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQUENCY COUNTER	2.097152MHz±12Hz	

2-5-2. TIMER REFERENCE CLOCK (2) ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP7001	C7008		
TAPE	**M. EQ.**	**SPEC.**	
	FREQUENCY COUNTER	61.035±0.001μs	

1. Disconnect the AC power plug.

CIRCUIT BOARD LAYOUT


JACK PACK C.B.A.
REF. NO. 4500 SERIES
AUDIO/OSD PACK C.B.A.
REF. NO. 3200 SERIES
REF. NO. 4400 SERIES
POWER SUPPLY C.B.A.
REF. NO. 1100 SERIES
HEAD AMP C.B.A.
REF. NO. 5000 SERIES
OPERATION C.B.A.
REF. NO. 6500 SERIES
MAIN C.B.A.
REF. NO. 1000 SERIES
REF. NO. 2000 SERIES
REF. NO. 3000 SERIES
REF. NO. 4000 SERIES
REF. NO. 6000 SERIES
SUB MAIN C.B.A.
REF. NO. 2500 SERIES
REF. NO. 3000 SERIES
TIMER C.B.A.
REF. NO. 7000 SERIES

2-4. AUDIO SECTION

2-4-1. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT) TP4003 (GND)	VR4002	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK	V.T.V.M	2.2±0.1mVrms	

Note:
Connect a jumer wire between Audio input and GND.

2-4-2. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
AUDIO OUT (TP4001)	VR4001	REC±PLAY ↓ PLAY	1kHz, −10dB AUDIO SIGNAL/ COLOUR BAR SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANC	SINE WAVE GENERATOR /V.T.V.M	P.B LEVEL= E-E LEVEL ±0.5dB	

Note:
Before this adjustment "Tape Interchangeability Adjustment" and "Audio Bias Current Adjustment" must be completed.

2-5. TIMER SECTION

2-5-1. TIMER REFERENCE CLOCK (1) ADJUSTMENT

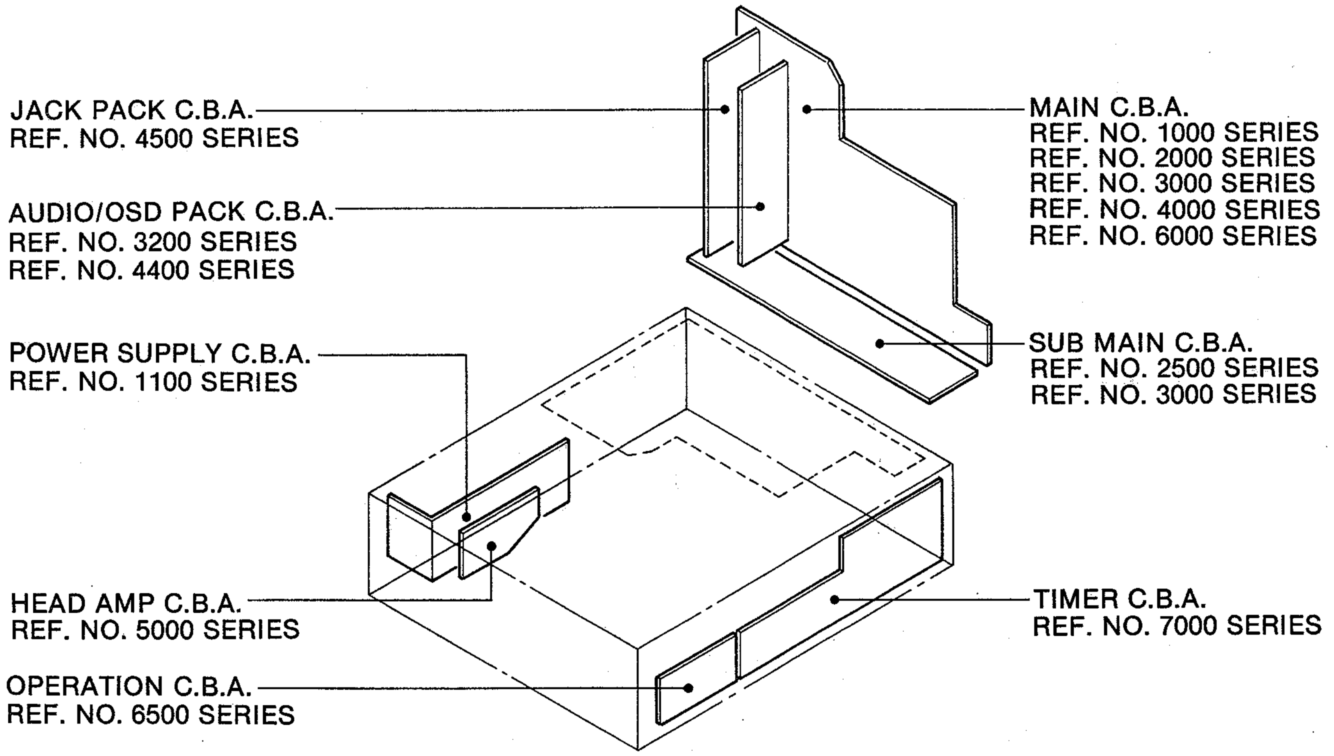
TP	ADJ.	MODE	INPUT
TP7001	C7006	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQUENCY COUNTER	2.097152MHz±12Hz	

2-5-2. TIMER REFERENCE CLOCK (2) ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP7001	C7008		
TAPE	**M. EQ.**	**SPEC.**	
	FREQUENCY COUNTER	61.035±0.001µs	

1. Disconnect the AC power plug.

CIRCUIT BOARD LAYOUT

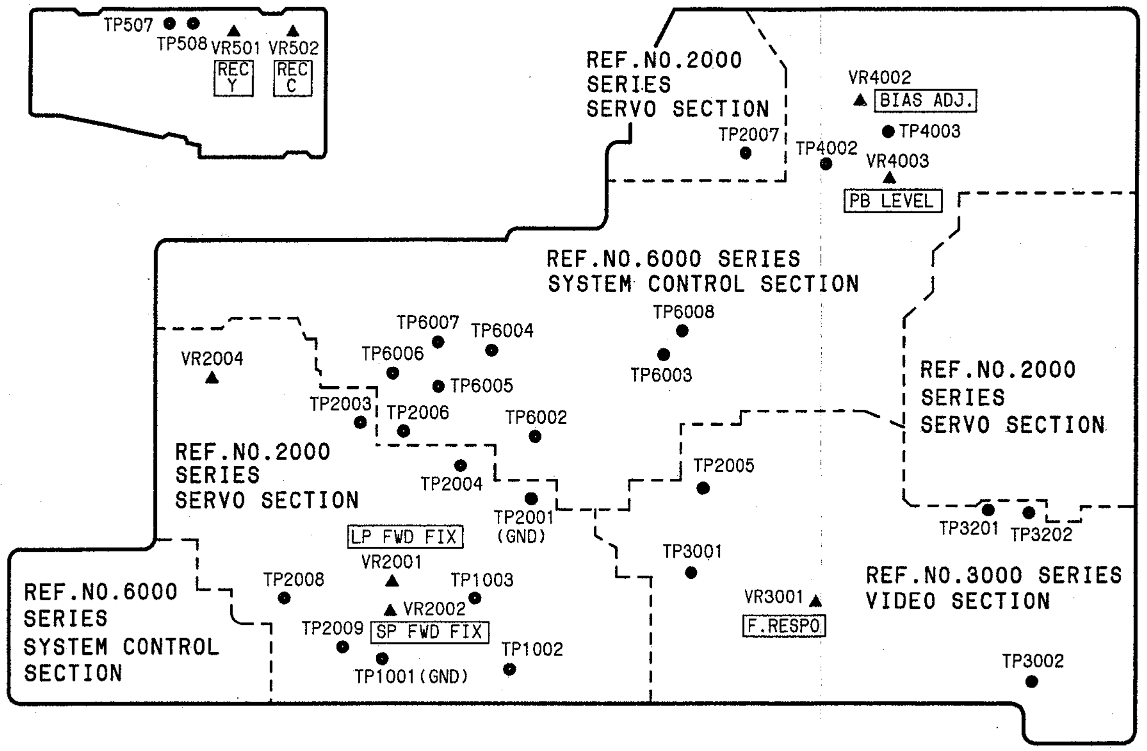

JACK PACK C.B.A.
REF. NO. 4500 SERIES
AUDIO/OSD PACK C.B.A.
REF. NO. 3200 SERIES
REF. NO. 4400 SERIES
POWER SUPPLY C.B.A.
REF. NO. 1100 SERIES
HEAD AMP C.B.A.
REF. NO. 5000 SERIES
OPERATION C.B.A.
REF. NO. 6500 SERIES
MAIN C.B.A.
REF. NO. 1000 SERIES
REF. NO. 2000 SERIES
REF. NO. 3000 SERIES
REF. NO. 4000 SERIES
REF. NO. 6000 SERIES
SUB MAIN C.B.A.
REF. NO. 2500 SERIES
REF. NO. 3000 SERIES
TIMER C.B.A.
REF. NO. 7000 SERIES

LOCATION OF TEST POINTS & CONTROL

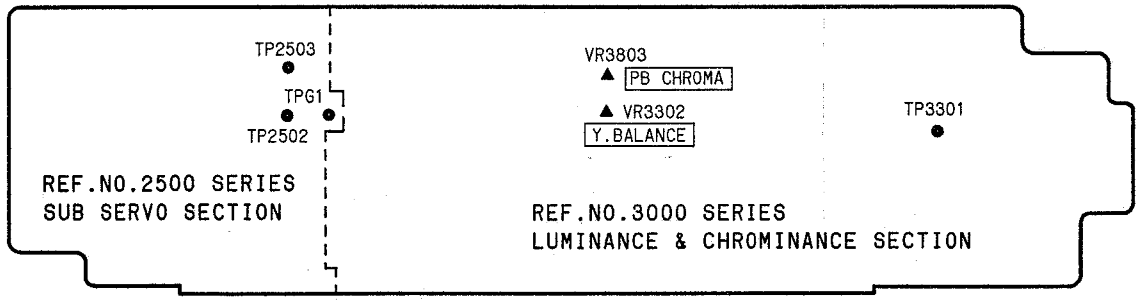
HEAD AMP C.B.A.

TP507
TP508
VR501
VR502
REC Y
REC C

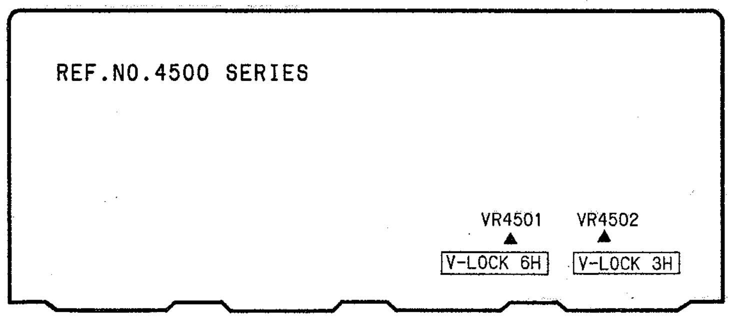
MAIN C.B.A.


REF.NO.2000 SERIES SERVO SECTION
TP2007
TP4002
VR4002
BIAS ADJ.
TP4003
VR4003
PB LEVEL
REF.NO.6000 SERIES SYSTEM CONTROL SECTION
TP6008
TP6003
TP6007
TP6004
TP6006
TP6005
VR2004
TP2003
TP2006
TP6002
REF.NO.2000 SERIES SERVO SECTION
TP2004
TP2001 (GND)
TP2005
REF.NO.2000 SERIES SERVO SECTION
TP3201
TP3202
LP FWD FIX
VR2001
TP2008
TP1003
VR2002
TP2009
SP FWD FIX
TP1001 (GND)
TP1002
TP3001
VR3001
F.RESPO
REF.NO.3000 SERIES VIDEO SECTION
TP3002
REF.NO.6000 SERIES SYSTEM CONTROL SECTION

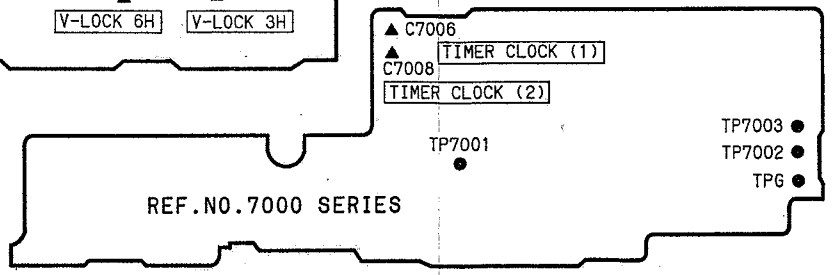
SUB MAIN C.B.A.


TP2503
TPG1
TP2502
REF.NO.2500 SERIES SUB SERVO SECTION
VR3803
PB CHROMA
VR3302
Y.BALANCE
TP3301
REF.NO.3000 SERIES LUMINANCE & CHROMINANCE SECTION

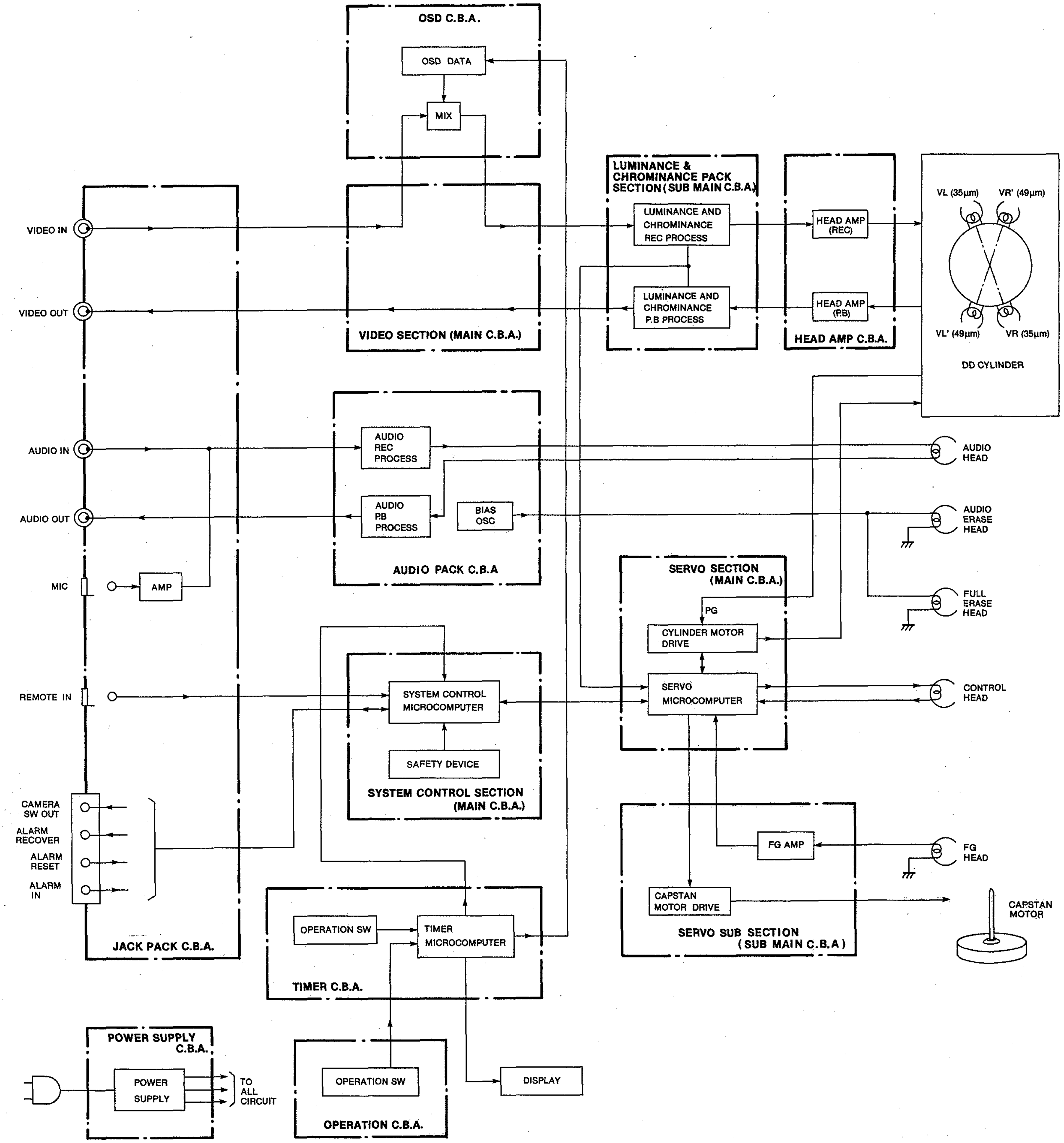
JACK PACK C.B.A.


REF.NO.4500 SERIES
VR4501
V-LOCK 6H
VR4502
V-LOCK 3H

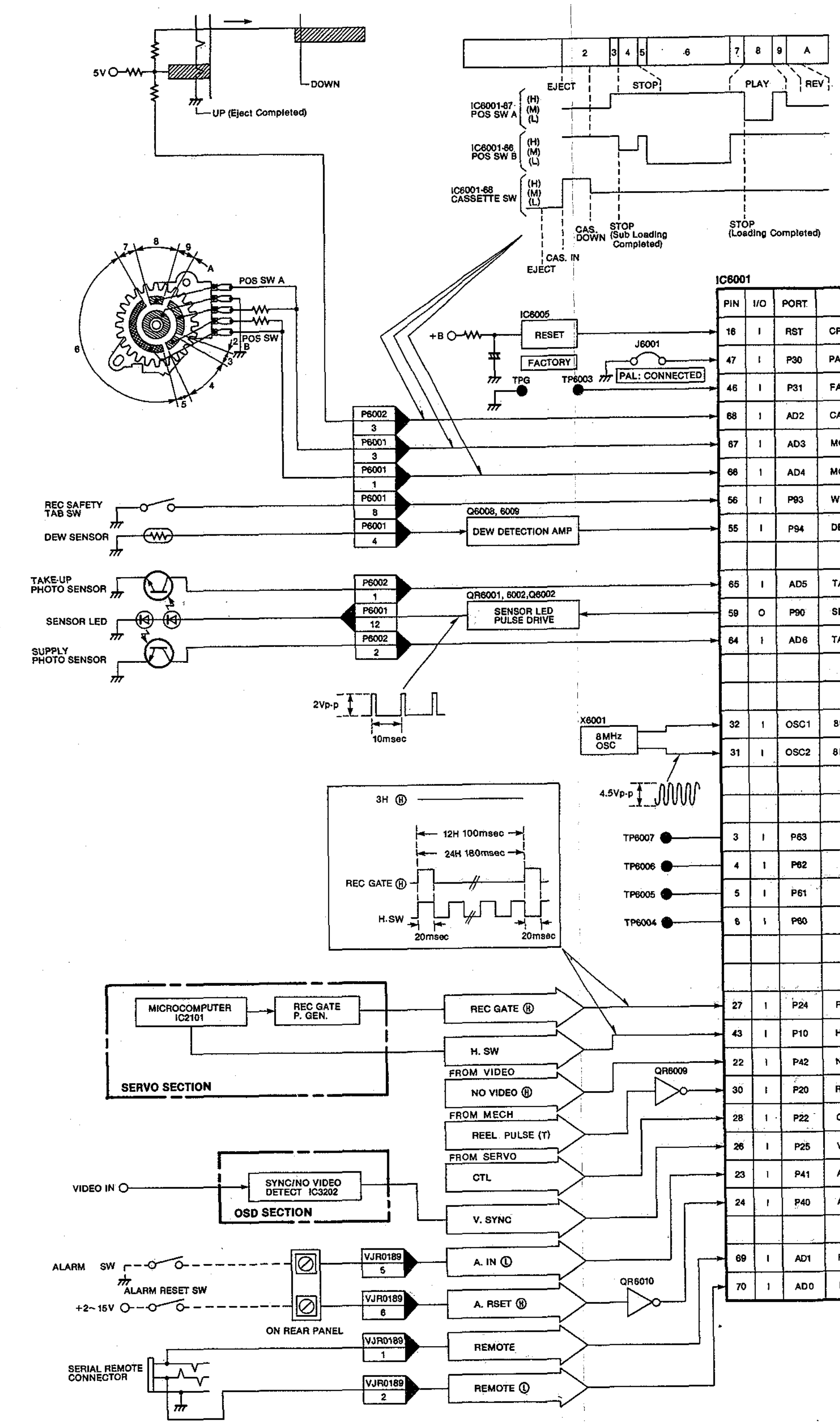
TIMER C.B.A.


C7006
TIMER CLOCK (1)
C7008
TIMER CLOCK (2)
TP7001
TP7003
TP7002
TPG
REF.NO.7000 SERIES

OVERALL BLOCK DIAGRAM


OSD C.B.A.
OSD DATA
MIX
VIDEO IN
VIDEO OUT
VIDEO SECTION (MAIN C.B.A.)
LUMINANCE & CHROMINANCE PACK SECTION (SUB MAIN C.B.A.)
LUMINANCE AND CHROMINANCE REC PROCESS
LUMINANCE AND CHROMINANCE P.B PROCESS
HEAD AMP (REC)
HEAD AMP (P.B)
HEAD AMP C.B.A.
VL (35μm)
VR' (49μm)
VL' (49μm)
VR (35μm)
DD CYLINDER
AUDIO IN
AUDIO OUT
AUDIO REC PROCESS
AUDIO PB PROCESS
BIAS OSC
AUDIO PACK C.B.A
AUDIO HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
MIC
AMP
SERVO SECTION (MAIN C.B.A.)
PG
CYLINDER MOTOR DRIVE
SERVO MICROCOMPUTER
CONTROL HEAD
REMOTE IN
SYSTEM CONTROL MICROCOMPUTER
SAFETY DEVICE
SYSTEM CONTROL SECTION (MAIN C.B.A.)
CAMERA SW OUT
ALARM RECOVER
ALARM RESET
ALARM IN
JACK PACK C.B.A.
FG AMP
FG HEAD
CAPSTAN MOTOR DRIVE
SERVO SUB SECTION (SUB MAIN C.B.A)
CAPSTAN MOTOR
OPERATION SW
TIMER MICROCOMPUTER
TIMER C.B.A.
POWER SUPPLY C.B.A.
POWER SUPPLY
TO ALL CIRCUIT
OPERATION SW
OPERATION C.B.A.
DISPLAY

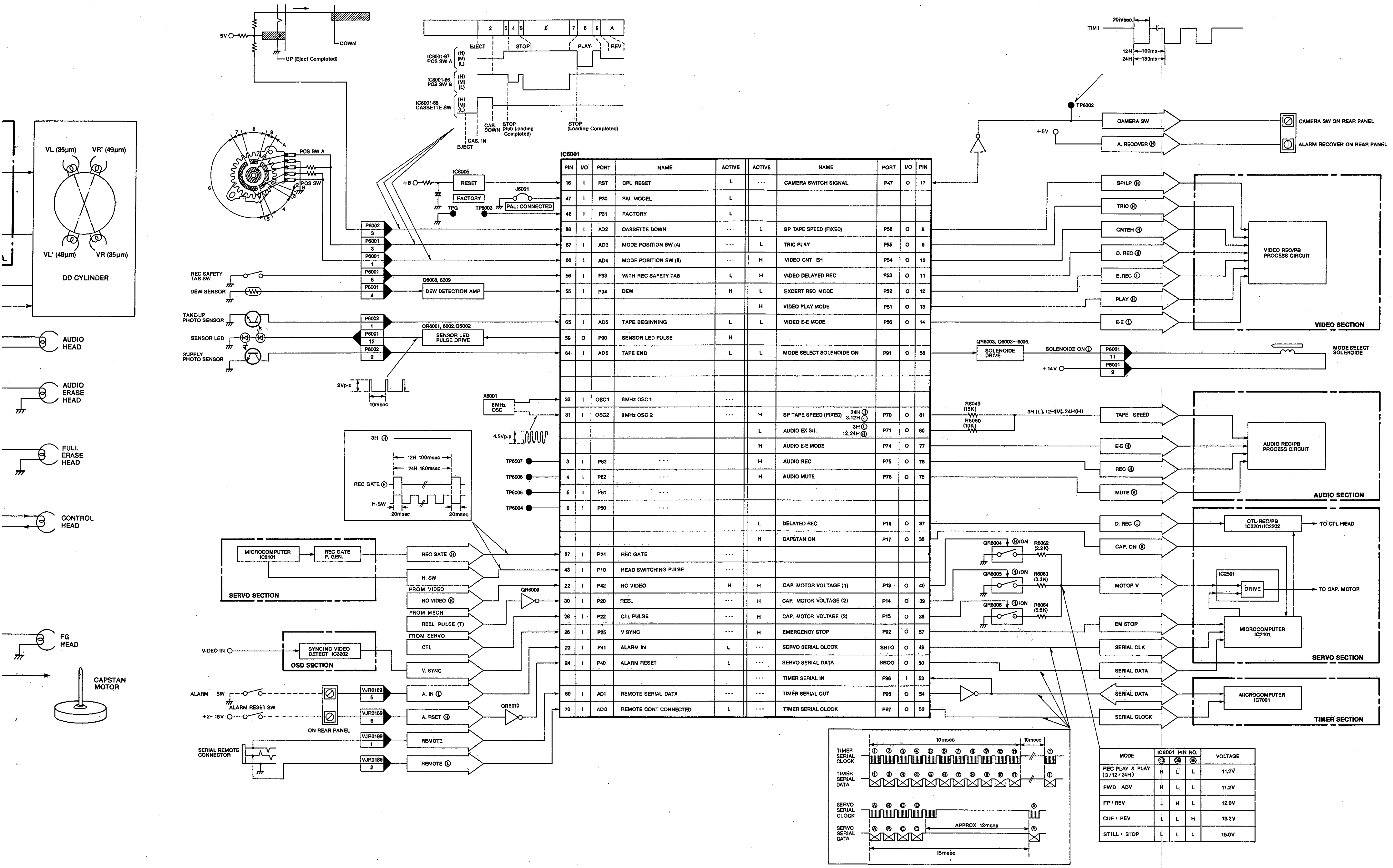
SYSTEM CONTROL BLOCK DIAGRAM


5V
UP (Eject Completed)
DOWN
EJECT
STOP
PLAY
REV
IC6001-67 POS SW A
IC6001-66 POS SW B
IC6001-68 CASSETTE SW
(H) (M) (L)
CAS. DOWN
STOP (Sub Loading Completed)
CAS. IN
EJECT
STOP (Loading Completed)
POS SW A
POS SW B
IC6005
RESET
FACTORY
+B
TPG
TP6003
J6001
PAL: CONNECTED
P6002
P6001
REC SAFETY TAB SW
DEW SENSOR
Q6008, 6009
DEW DETECTION AMP
TAKE-UP PHOTO SENSOR
SENSOR LED
SUPPLY PHOTO SENSOR
QR6001, 6002, Q6002
SENSOR LED PULSE DRIVE
2Vp-p
10msec
X6001
8MHz OSC
4.5Vp-p
3H
12H 100msec
24H 180msec
REC GATE
H.SW
20msec
TP6007
TP6006
TP6005
TP6004
MICROCOMPUTER IC2101
REC GATE P. GEN.
SERVO SECTION
REC GATE
H. SW
FROM VIDEO
NO VIDEO
FROM MECH
REEL PULSE (T)
FROM SERVO
CTL
QR6009
VIDEO IN
SYNC/NO VIDEO DETECT IC3202
OSD SECTION
V. SYNC
ALARM SW
ALARM RESET SW
+2~15V
VJR0189
A. IN
A. RSET
ON REAR PANEL
QR6010
SERIAL REMOTE CONNECTOR
REMOTE

IC6001

PIN	I/O	PORT	NAME	ACTIVE	ACTIVE	N
16	I	RST	CPU RESET	L	···	CAMERA SWITC
47	I	P30	PAL MODEL	L		
46	I	P31	FACTORY	L		
68	I	AD2	CASSETTE DOWN	···	L	SP TAPE SPEED
67	I	AD3	MODE POSITION SW (A)	···	L	TRIC PLAY
66	I	AD4	MODE POSITION SW (B)	···	H	VIDEO CNT EH
56	I	P93	WITH REC SAFETY TAB	L	H	VIDEO DELAYE
55	I	P94	DEW	H	L	EXCERT REC M
					H	VIDEO PLAY MO
65	I	AD5	TAPE BEGINNING	L	L	VIDEO E-E MOD
59	O	P90	SENSOR LED PULSE	H		
64	I	AD6	TAPE END	L	L	MODE SELECT
32	I	OSC1	8MHz OSC 1	···		
31	I	OSC2	8MHz OSC 2	···	H	SP TAPE SPEE
					L	AUDIO EX S/L
					H	AUDIO E-E MOD
3	I	P63	···		H	AUDIO REC
4	I	P62	···		H	AUDIO MUTE
5	I	P61	···			
6	I	P60	···			
					L	DELAYED REC
					H	CAPSTAN ON
27	I	P24	REC GATE	···		
43	I	P10	HEAD SWITCHING PULSE	···		
22	I	P42	NO VIDEO	H	H	CAP. MOTOR V
30	I	P20	REEL	···	H	CAP. MOTOR V
28	I	P22	CTL PULSE	···	H	CAP. MOTOR V
26	I	P25	V SYNC	···	H	EMERGENCY S
23	I	P41	ALARM IN	L	···	SERVO SERIAL
24	I	P40	ALARM RESET	L	···	SERVO SERIAL
					···	TIMER SERIAL
69	I	AD1	REMOTE SERIAL DATA	···	···	TIMER SERIAL
70	I	AD0	REMOTE CONT CONNECTED	L	···	TIMER SERIAL

SYSTEM CONTROL BLOCK DIAGRAM

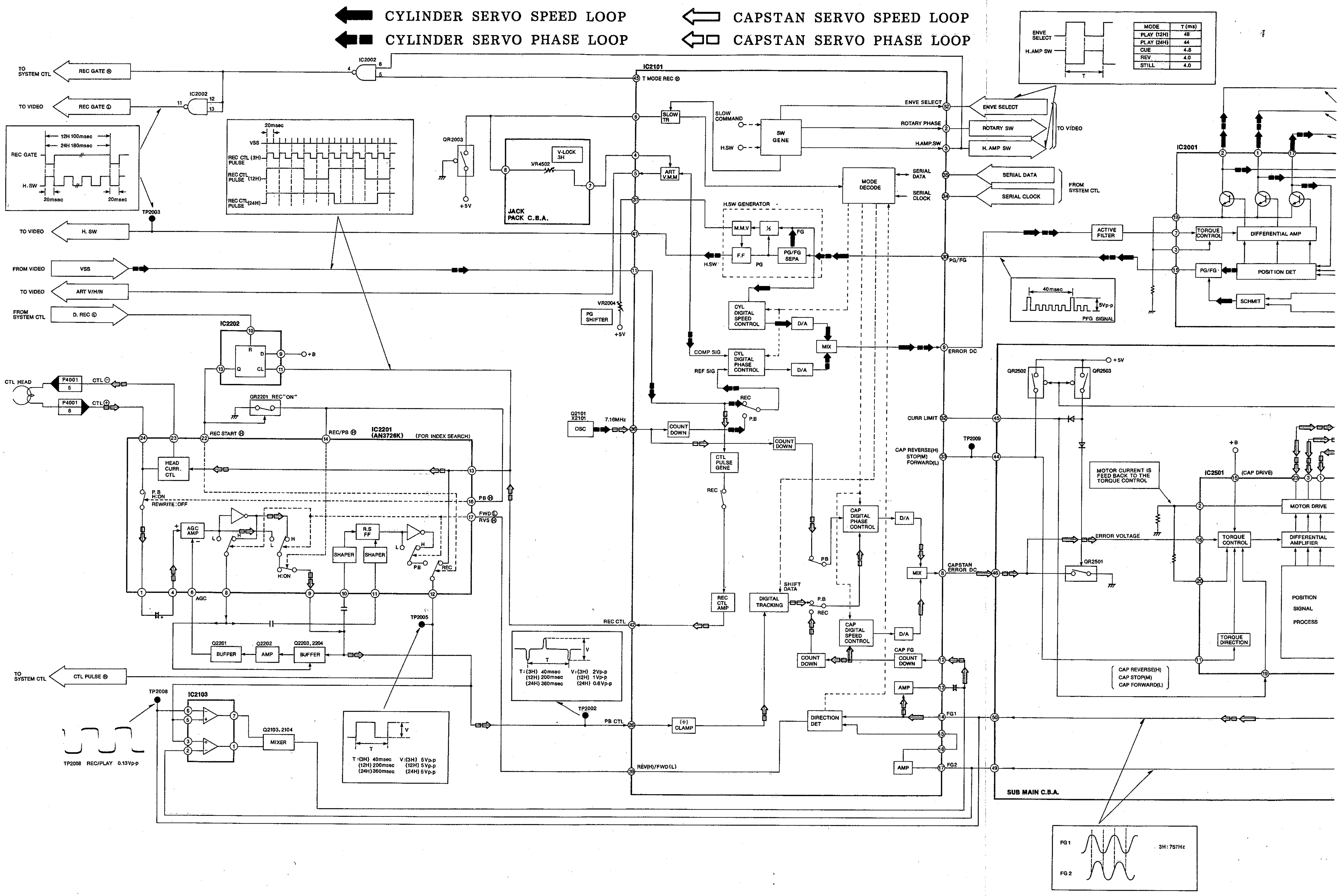

5V
UP (Eject Completed)
DOWN
2
3
4
5
6
7
8
9
A
EJECT
STOP
PLAY
REV
IC6001-67 POS SW A
IC6001-66 POS SW B
IC6001-68 CASSETTE SW
(H)
(M)
(L)
CAS. DOWN
STOP (Sub Loading Completed)
STOP (Loading Completed)
CAS. IN
EJECT
POS SW A
POS SW B
VL (35μm)
VR' (49μm)
VL' (49μm)
VR (35μm)
DD CYLINDER
AUDIO HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
CONTROL HEAD
FG HEAD
CAPSTAN MOTOR
IC6005
+B
RESET
FACTORY
J6001
PAL: CONNECTED
TPG
TP6003
P6002 3
P6001 3
P6001 1
P6001 8
P6001 4
REC SAFETY TAB SW
DEW SENSOR
Q6008, 6009
DEW DETECTION AMP
TAKE-UP PHOTO SENSOR
SENSOR LED
SUPPLY PHOTO SENSOR
P6002 1
P6001 12
P6002 2
QR6001, 6002,Q6002
SENSOR LED PULSE DRIVE
2Vp-p
10msec
X6001
8MHz OSC
4.5Vp-p
TP6007
TP6006
TP6005
TP6004
3H Ⓗ
12H 100msec
24H 180msec
REC GATE Ⓗ
H.SW
20msec
20msec
MICROCOMPUTER IC2101
REC GATE P. GEN.
SERVO SECTION
REC GATE Ⓗ
H. SW
FROM VIDEO
NO VIDEO Ⓗ
QR6009
FROM MECH
REEL PULSE (T)
FROM SERVO
CTL
VIDEO IN
SYNC/NO VIDEO DETECT IC3202
OSD SECTION
V. SYNC
ALARM SW
ALARM RESET SW
+2~15V
ON REAR PANEL
VJR0189 5
VJR0189 6
VJR0189 1
VJR0189 2
A. IN Ⓛ
A. RSET Ⓗ
QR6010
REMOTE
REMOTE Ⓛ
SERIAL REMOTE CONNECTOR
IC6001
TIM1
20msec.
12H 100ms
24H 180ms
TP6002
+5V
CAMERA SW
A. RECOVER Ⓗ
CAMERA SW ON REAR PANEL
ALARM RECOVER ON REAR PANEL
SP/LP Ⓗ
TRIC Ⓗ
CNTEH Ⓗ
D. REC Ⓗ
E.REC Ⓛ
PLAY Ⓗ
E-E Ⓛ
VIDEO REC/PB PROCESS CIRCUIT
VIDEO SECTION
QR6003, Q6003~6005
SOLENOIDE DRIVE
SOLENOIDE ON Ⓛ
P6001 11
P6001 9
+14V
MODE SELECT SOLENOIDE
R6049 (15K)
R6050 (10K)
3H (L), 12H(M), 24H(H)
TAPE SPEED
E-E Ⓗ
REC Ⓗ
MUTE Ⓗ
AUDIO REC/PB PROCESS CIRCUIT
AUDIO SECTION
D. REC Ⓛ
CAP. ON Ⓗ
CTL REC/PB IC2201/IC2202
TO CTL HEAD
QR6004 Ⓗ/ON
R6062 (2.2K)
QR6005 Ⓗ/ON
R6063 (3.3K)
QR6006 Ⓗ/ON
R6064 (5.6K)
MOTOR V
IC2501
DRIVE
TO CAP. MOTOR
EM STOP
MICROCOMPUTER IC2101
SERIAL CLK
SERIAL DATA
SERVO SECTION
SERIAL DATA
SERIAL CLOCK
MICROCOMPUTER IC7001
TIMER SECTION
10msec
10msec
TIMER SERIAL CLOCK
TIMER SERIAL DATA
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪
SERVO SERIAL CLOCK
SERVO SERIAL DATA
Ⓐ Ⓑ Ⓒ Ⓓ
APPROX 12msec
15msec

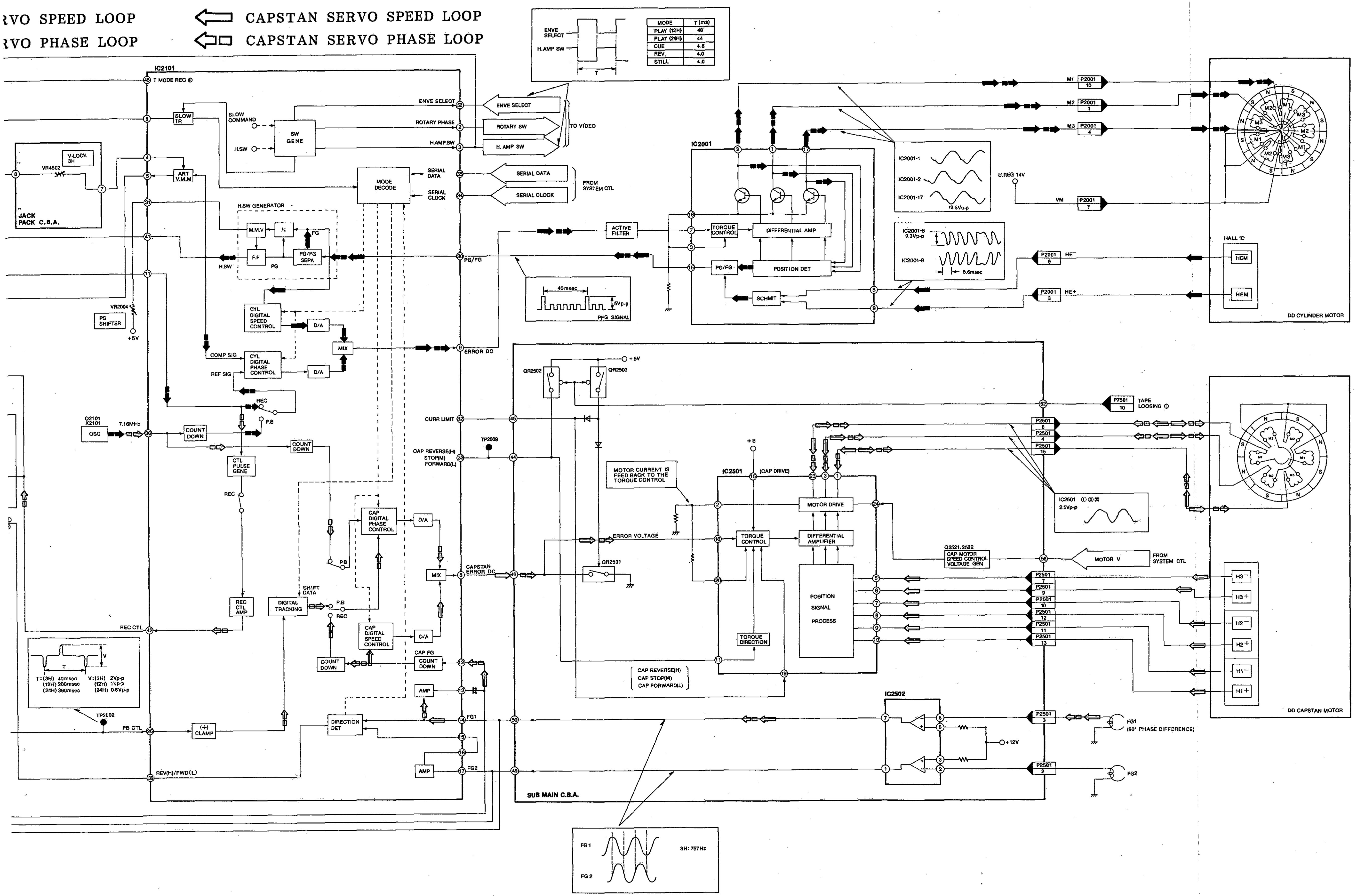
IC6001

PIN	I/O	PORT	NAME	ACTIVE	ACTIVE	NAME	PORT	I/O	PIN
16	I	RST	CPU RESET	L	···	CAMERA SWITCH SIGNAL	P47	O	17
47	I	P30	PAL MODEL	L					
46	I	P31	FACTORY	L					
68	I	AD2	CASSETTE DOWN	···	L	SP TAPE SPEED (FIXED)	P56	O	8
67	I	AD3	MODE POSITION SW (A)	···	L	TRIC PLAY	P55	O	9
66	I	AD4	MODE POSITION SW (B)	···	H	VIDEO CNT EH	P54	O	10
56	I	P93	WITH REC SAFETY TAB	L	H	VIDEO DELAYED REC	P53	O	11
55	I	P94	DEW	H	L	EXCERT REC MODE	P52	O	12
					H	VIDEO PLAY MODE	P51	O	13
65	I	AD5	TAPE BEGINNING	L	L	VIDEO E-E MODE	P50	O	14
59	O	P90	SENSOR LED PULSE	H					
64	I	AD6	TAPE END	L	L	MODE SELECT SOLENOIDE ON	P91	O	58
32	I	OSC1	8MHz OSC 1	···					
31	I	OSC2	8MHz OSC 2	···	H	SP TAPE SPEED (FIXED) 24H Ⓗ 3,12H Ⓛ	P70	O	81
					L	AUDIO EX S/L 3H Ⓛ 12,24H Ⓗ	P71	O	80
					H	AUDIO E-E MODE	P74	O	77
3	I	P63	···		H	AUDIO REC	P75	O	76
4	I	P62	···		H	AUDIO MUTE	P76	O	75
5	I	P61	···						
6	I	P60	···						
					L	DELAYED REC	P16	O	37
					H	CAPSTAN ON	P17	O	36
27	I	P24	REC GATE	···					
43	I	P10	HEAD SWITCHING PULSE	···					
22	I	P42	NO VIDEO	H	H	CAP. MOTOR VOLTAGE (1)	P13	O	40
30	I	P20	REEL	···	H	CAP. MOTOR VOLTAGE (2)	P14	O	39
28	I	P22	CTL PULSE	···	H	CAP. MOTOR VOLTAGE (3)	P15	O	38
26	I	P25	V SYNC	···	H	EMERGENCY STOP	P92	O	57
23	I	P41	ALARM IN	L	···	SERVO SERIAL CLOCK	SBTO	O	48
24	I	P40	ALARM RESET	L	···	SERVO SERIAL DATA	SBOO	O	50
					···	TIMER SERIAL IN	P96	I	53
69	I	AD1	REMOTE SERIAL DATA	···	···	TIMER SERIAL OUT	P95	O	54
70	I	AD0	REMOTE CONT CONNECTED	L	···	TIMER SERIAL CLOCK	P97	O	52

MODE	IC6001 PIN NO.			VOLTAGE
	㊵	㊴	㊳	
REC PLAY & PLAY (3/12/24H)	H	L	L	11.2V
FWD ADV	H	L	L	11.2V
FF/REV	L	H	L	12.0V
CUE/REV	L	L	H	13.2V
STILL/STOP	L	L	L	15.0V

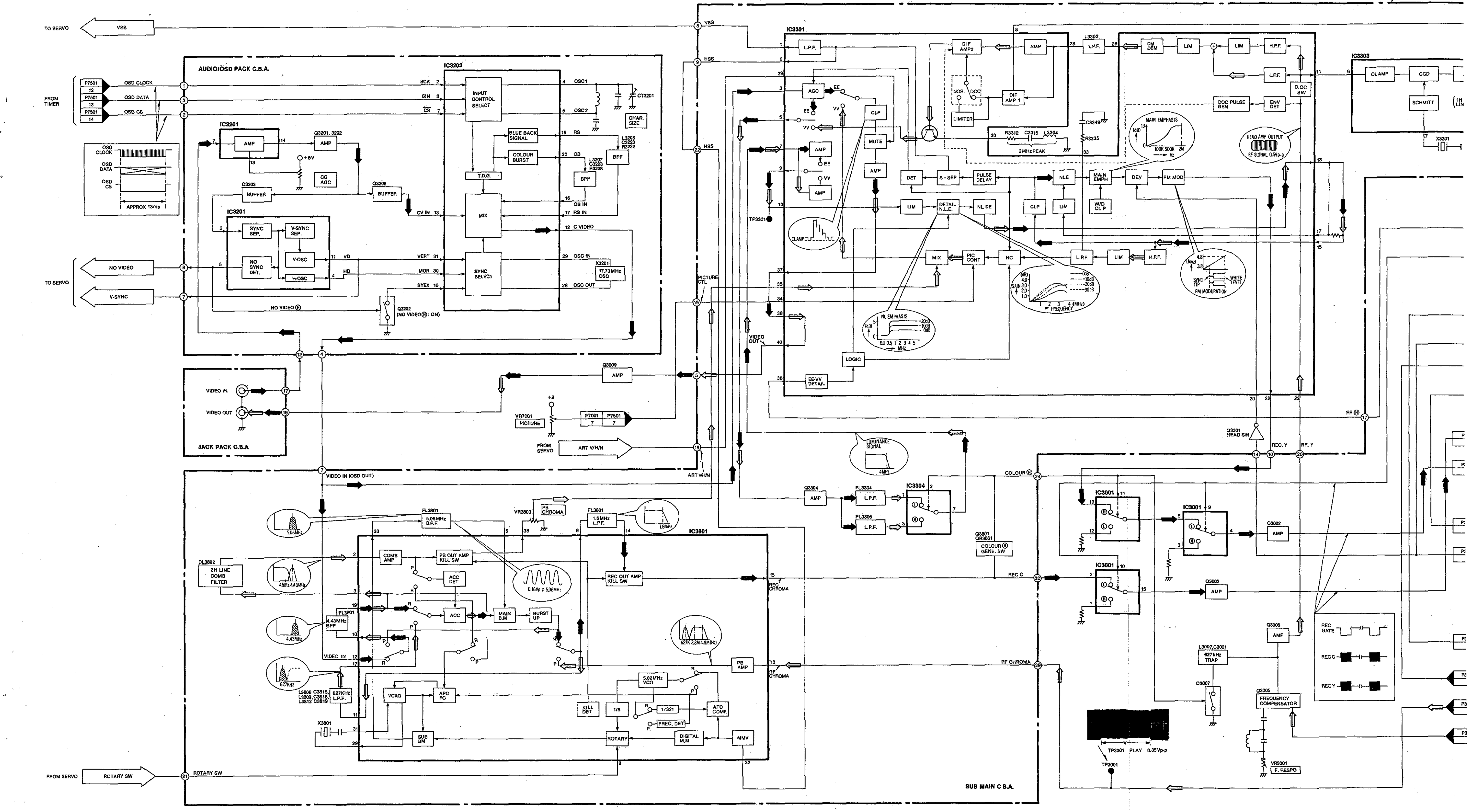
SERVO BLOCK DIAGRAM


CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
TO SYSTEM CTL
REC GATE
TO VIDEO
REC GATE
IC2002
12H 100msec
24H 180msec
H.SW
20msec
TP2003
TO VIDEO
H. SW
FROM VIDEO
VSS
TO VIDEO
ART V/H/N
FROM SYSTEM CTL
D. REC
VSS
REC CTL (3H) PULSE
REC CTL PULSE (12H)
REC CTL PULSE (24H)
QR2003
+5V
V-LOCK 3H
VR4502
JACK PACK C.B.A.
IC2101
T MODE REC
SLOW TR
SLOW COMMAND
H.SW
SW GENE
ART V.M.M
MODE DECODE
ENVE SELECT
ROTARY PHASE
H.AMP.SW
SERIAL DATA
SERIAL CLOCK
ENVE SELECT
ROTARY SW
H. AMP SW
TO VIDEO
SERIAL DATA
SERIAL CLOCK
FROM SYSTEM CTL
ENVE SELECT
H.AMP SW
MODE
T (ms)
PLAY (12H)
48
PLAY (24H)
44
CUE
4.8
REV
4.0
STILL
4.0
H.SW GENERATOR
M.M.V
½
FG
F.F
PG
PG/FG SEPA
VR2004
PG SHIFTER
CYL DIGITAL SPEED CONTROL
D/A
MIX
COMP SIG
REF SIG
CYL DIGITAL PHASE CONTROL
D/A
ERROR DC
PG/FG
40msec
5Vp-p
PFG SIGNAL
REC
P.B
Q2101 X2101
7.16MHz
OSC
COUNT DOWN
COUNT DOWN
CTL PULSE GENE
REC
REC CTL AMP
DIGITAL TRACKING
SHIFT DATA
P.B
REC
CAP DIGITAL PHASE CONTROL
D/A
MIX
CAPSTAN ERROR DC
CAP DIGITAL SPEED CONTROL
D/A
COUNT DOWN
CAP FG
COUNT DOWN
AMP
FG1
DIRECTION DET
AMP
FG2
CURR LIMIT
CAP REVERSE(H) STOP(M) FORWARD(L)
TP2009
REC CTL
PB CTL
(+) CLAMP
REV(H)/FWD(L)
TP2002
IC2202
+B
CTL HEAD
P4001
CTL
QR2201 REC "ON"
REC START
REC/PB
IC2201 (AN3726K)
(FOR INDEX SEARCH)
HEAD CURR. CTL
P.B H:ON
REWRITE :OFF
PB
FWD
RVS
AGC AMP
R.S FF
SHAPER
SHAPER
H:ON
AGC
TP2005
Q2201 BUFFER
Q2202 AMP
Q2203, 2204 BUFFER
TO SYSTEM CTL
CTL PULSE
TP2008
IC2103
Q2103, 2104 MIXER
TP2008 REC/PLAY 0.13Vp-p
T : (3H) 40msec (12H) 200msec (24H) 360msec
V : (3H) 5Vp-p (12H) 5Vp-p (24H) 5Vp-p
T : (3H) 40msec (12H) 200msec (24H) 360msec
V : (3H) 2Vp-p (12H) 1Vp-p (24H) 0.6Vp-p
IC2001
ACTIVE FILTER
TORQUE CONTROL
DIFFERENTIAL AMP
PG/FG
POSITION DET
SCHMIT
+5V
QR2502
QR2503
+B
MOTOR CURRENT IS FEED BACK TO THE TORQUE CONTROL
IC2501
(CAP DRIVE)
MOTOR DRIVE
ERROR VOLTAGE
TORQUE CONTROL
DIFFERENTIAL AMPLIFIER
QR2501
POSITION SIGNAL PROCESS
TORQUE DIRECTION
CAP REVERSE(H) CAP STOP(M) CAP FORWARD(L)
SUB MAIN C.B.A.
FG1
FG2
3H : 757Hz

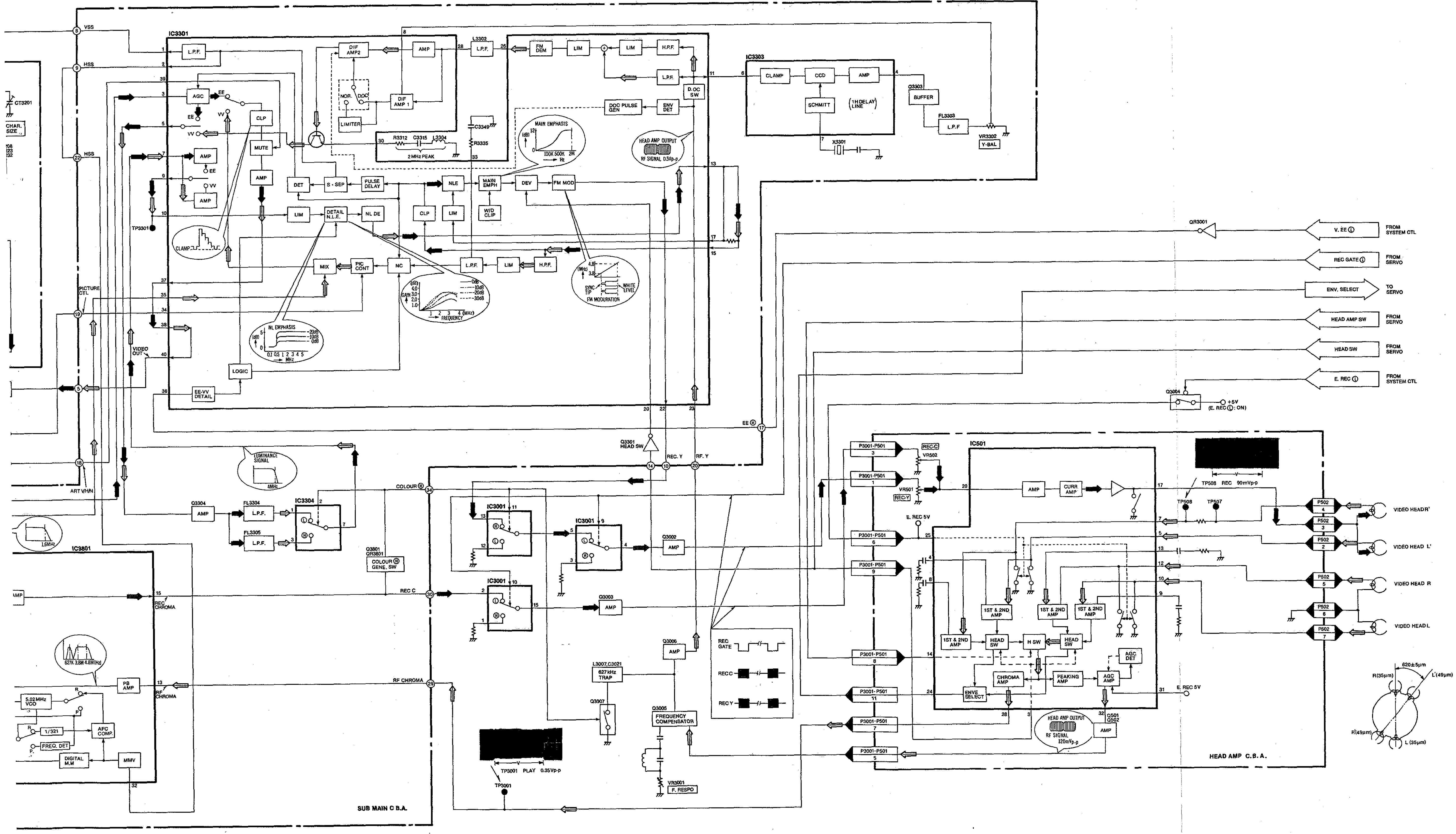

RVO SPEED LOOP
RVO PHASE LOOP
CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
ENVE SELECT
H.AMP SW
MODE
T (ms)
PLAY (12H) 48
PLAY (24H) 44
CUE 4.6
REV. 4.0
STILL 4.0
IC2101
T MODE REC
SLOW TR
SLOW COMMAND
SW GENE
H.SW
ENVE SELECT
ROTARY PHASE
H.AMP.SW
ROTARY SW
H. AMP SW
TO VIDEO
V-LOCK 3H
VR4502
ART V.M.M
JACK PACK C.B.A.
MODE DECODE
SERIAL DATA
SERIAL CLOCK
FROM SYSTEM CTL
H.SW GENERATOR
M.M.V
½
FG
F.F
PG/FG SEPA
PG
PG/FG
ACTIVE FILTER
40msec
5Vp-p
PFG SIGNAL
VR2004
PG SHIFTER
+5V
CYL DIGITAL SPEED CONTROL
D/A
MIX
ERROR DC
COMP SIG
REF SIG
CYL DIGITAL PHASE CONTROL
REC
P.B
Q2101 X2101
7.16MHz
OSC
COUNT DOWN
CTL PULSE GENE
REC CTL AMP
REC CTL
DIGITAL TRACKING
SHIFT DATA
CAP DIGITAL PHASE CONTROL
CAP DIGITAL SPEED CONTROL
CAP FG
AMP
DIRECTION DET
(+) CLAMP
PB CTL
TP2002
REV(H)/FWD(L)
T:(3H) 40msec (12H) 200msec (24H) 360msec
V:(3H) 2Vp-p (12H) 1Vp-p (24H) 0.6Vp-p
CURR LIMIT
CAP REVERSE(H) STOP(M) FORWARD(L)
TP2009
CAPSTAN ERROR DC
FG1
FG2
QR2502
QR2503
QR2501
+5V
MOTOR CURRENT IS FEED BACK TO THE TORQUE CONTROL
IC2501
(CAP DRIVE)
+B
ERROR VOLTAGE
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
POSITION SIGNAL PROCESS
TORQUE DIRECTION
CAP REVERSE(H) CAP STOP(M) CAP FORWARD(L)
Q2521,2522 CAP MOTOR SPEED CONTROL VOLTAGE GEN
MOTOR V
FROM SYSTEM CTL
SUB MAIN C.B.A.
IC2502
+12V
FG1 (90° PHASE DIFFERENCE)
FG2
FG 1
FG 2
3H: 757Hz
IC2001
TORQUE CONTROL
DIFFERENTIAL AMP
PG/FG
POSITION DET
SCHMIT
IC2001-1
IC2001-2
IC2001-17
13.5Vp-p
IC2001-8 0.3Vp-p
IC2001-9
5.8msec
U.REG 14V
VM
M1 P2001 10
M2 P2001 1
M3 P2001 4
P2001 7
P2001 9 HE⁻
P2001 3 HE+
HALL IC
HCM
HEM
DD CYLINDER MOTOR
P7501 10
TAPE LOOSING
P2501 6
P2501 4
P2501 15
IC2501 ① ③ ㉓
2.5Vp-p
P2501 7
P2501 9
P2501 10
P2501 12
P2501 11
P2501 13
H3⁻
H3+
H2⁻
H2+
H1⁻
H1+
P2501 3
P2501 2
DD CAPSTAN MOTOR
N
S
M1
M2
M3

VIDEO BLOCK DIAGRAM

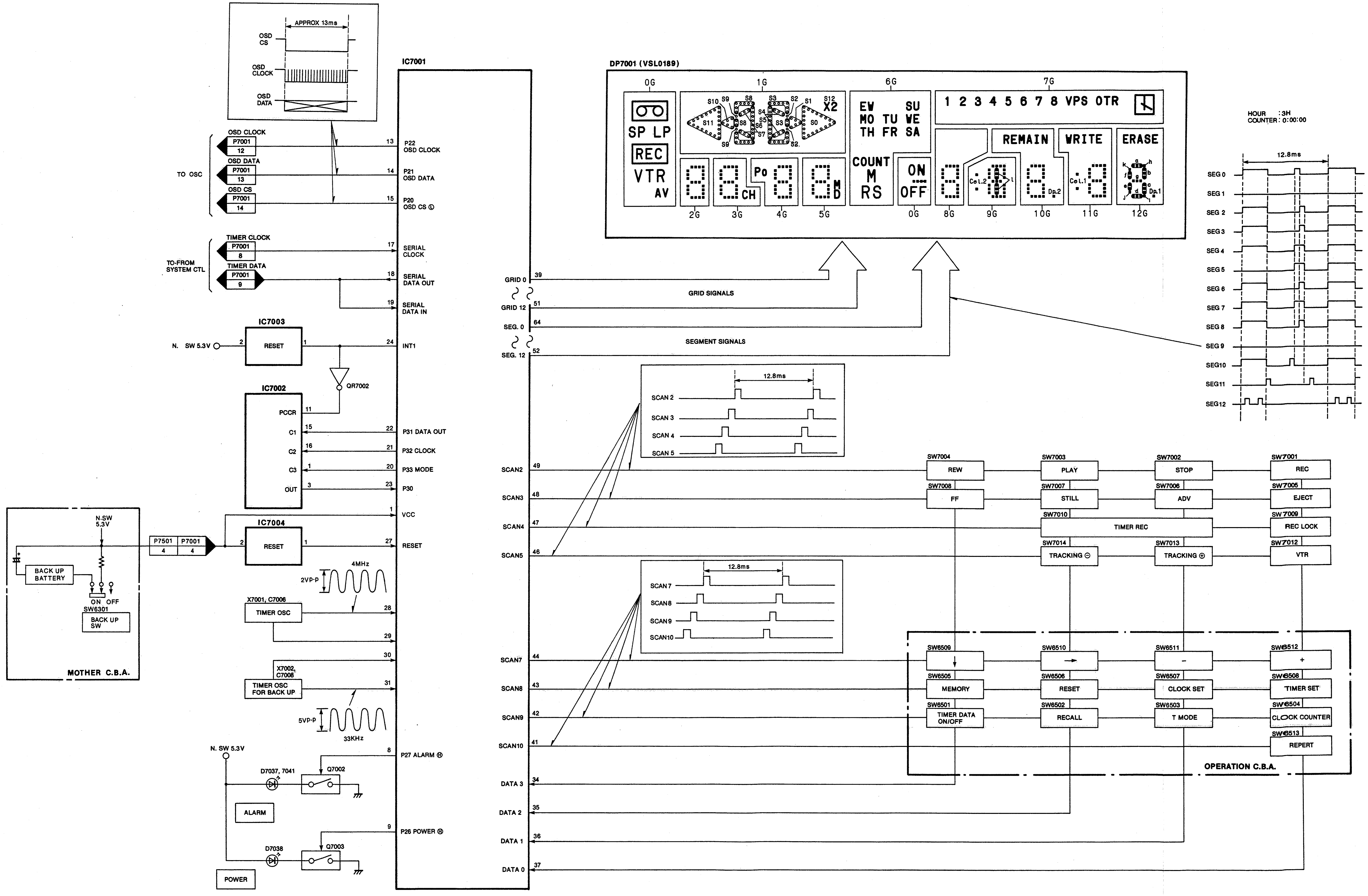
MAIN SIGNAL PATH IN REC MODE   MAIN SIGNAL PATH IN PLAYBACK MODE


TO SERVO
VSS
HSS
AUDIO/OSD PACK C.B.A.
IC3203
FROM TIMER
P7501
OSD CLOCK
OSD DATA
OSD CS
SCK
SIN
CS
INPUT CONTROL SELECT
OSC1
OSC2
CT3201
CHAR. SIZE
IC3201
AMP
Q3201, 3202
+5V
CG AGC
BLUE BACK SIGNAL
COLOUR BURST
RS
CB
L3208 C3223 R3232
L3207 C3222 R3228
BPF
T.D.G.
Q3203
BUFFER
Q3206
CV IN
MIX
CB IN
RS IN
C VIDEO
APPROX 13ms
SYNC SEP.
V-SYNC SEP.
V-OSC
H-OSC
NO SYNC DET.
VD
HD
VERT
MOR
SYEX
SYNC SELECT
OSC IN
X3201
17.73MHz OSC
OSC OUT
NO VIDEO
V-SYNC
NO VIDEO Ⓡ
Q3202 (NO VIDEO Ⓡ: ON)
VIDEO IN
VIDEO OUT
JACK PACK C.B.A
Q3009
VR7001
PICTURE
P7001
P7501
+B
FROM SERVO
ART V/H/N
ART V/H/N
PICTURE CTL
VIDEO OUT
IC3301
L.P.F.
AGC
EE
VV
CLP
MUTE
AMP
TP3301
CLAMP
DIF AMP2
DIF AMP 1
NOR.
DOC
LIMITER
R3312
C3315
L3304
2MHz PEAK
C3349
R3335
L3302
FM DEM
LIM
H.P.F.
DET
S - SEP
PULSE DELAY
NLE
MAIN EMPH
DEV
FM MOD
W/D CLIP
DETAIL N.L.E.
NL DE
CLP
MIX
PIC CONT
NC
LOGIC
EE-VV DETAIL
MAIN EMPHASIS
100K 500K 2M Hz
NL EMPHASIS
FREQUENCY
SYNC TIP
WHITE LEVEL
FM MODURATION
DOC PULSE GEN
ENV DET
D.OC SW
HEAD AMP OUTPUT
RF SIGNAL 0.5Vp-p
IC3303
CLAMP
CCD
SCHMITT
X3301
Q3301 HEAD SW
REC. Y
RF. Y
EE Ⓡ
LUMINANCE SIGNAL
4MHz
Q3304
FL3304
FL3305
IC3304
COLOUR Ⓡ
Q3801 QR3801
COLOUR Ⓡ GENE. SW
VIDEO IN (OSD OUT)
FL3801
5.06MHz B.P.F.
VR3803
PB CHROMA
1.6MHz L.P.F.
1.5MHz
IC3801
DL3802
2H LINE COMB FILTER
4MHz 4.43MHz
COMB AMP
PB OUT AMP KILL SW
ACC DET
ACC
MAIN B.M
BURST UP
0.16Vp-p 5.06MHz
REC OUT AMP KILL SW
REC CHROMA
REC C
4.43MHz BPF
627K 3.8M 4.8M(Hz)
PB AMP
RF CHROMA
627KHz L.P.F.
L3806 C3815
L3809 C3818
L3812 C3819
X3801
VCXO
APC PC
SUB BM
KILL DET
1/6
5.02MHz VCO
1/321
FREQ. DET
AFC COMP.
ROTARY
DIGITAL M.M
MMV
ROTARY SW
SUB MAIN C.B.A.
IC3001
Q3002
Q3003
Q3006
L3007,C3021
627kHz TRAP
Q3007
Q3005
FREQUENCY COMPENSATOR
VR3001
F. RESPO
TP3001
TP3001 PLAY 0.35Vp-p
REC GATE
REC C
REC Y

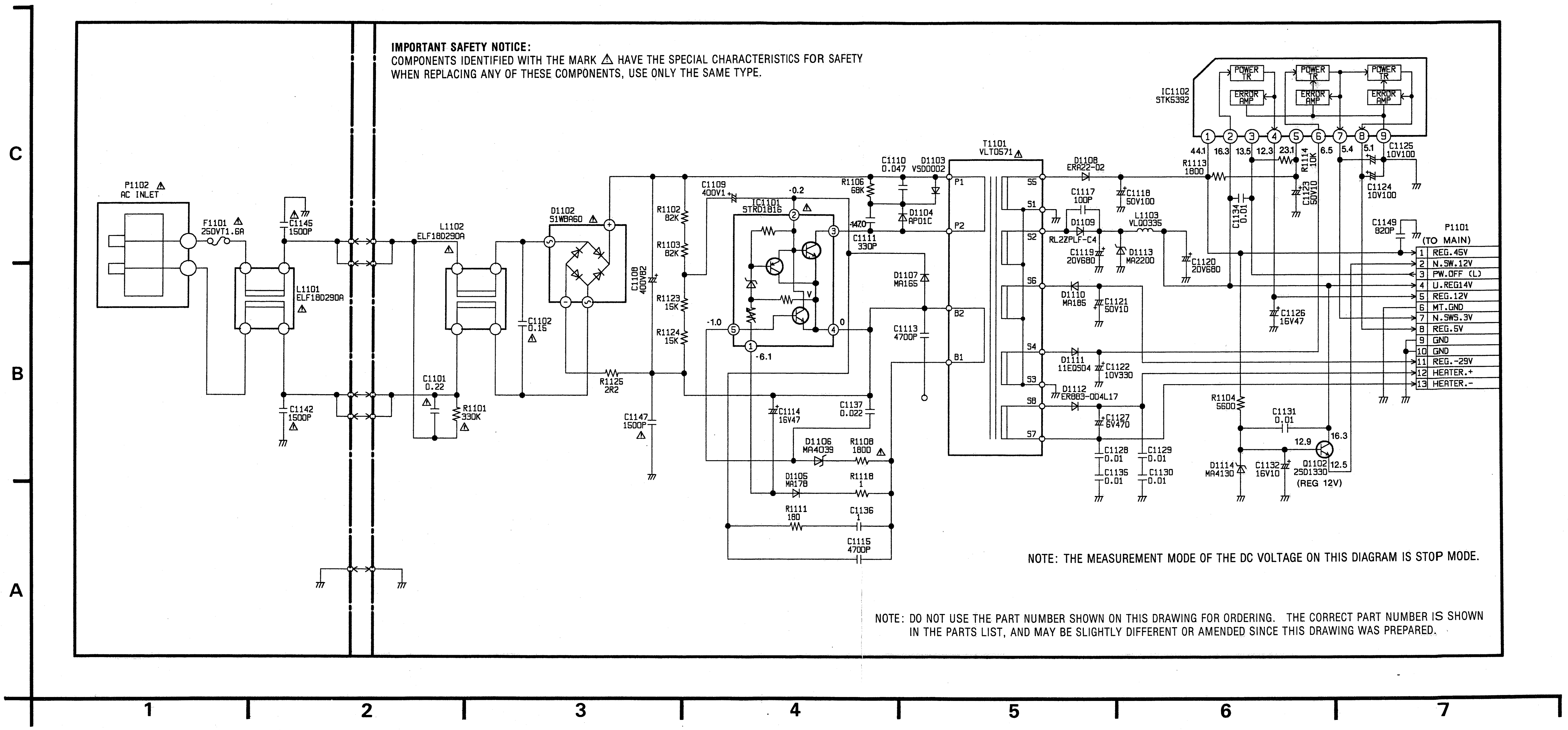
SIGNAL PATH IN REC MODE ⟸ MAIN SIGNAL PATH IN PLAYBACK MODE


IC3301
VSS
HSS
L.P.F.
AGC
EE
VV
CLP
MUTE
AMP
DIF AMP2
DIF AMP 1
NOR.
DOC
LIMITER
R3312
C3315
L3304
2MHz PEAK
C3349
R3335
L3302
FM DEM
LIM
H.P.F.
D.OC SW
DOC PULSE GEN
ENV DET
MAIN EMPHASIS
100K 500K 2M
HEAD AMP OUTPUT
RF SIGNAL 0.5Vp-p
DET
S-SEP
PULSE DELAY
NLE
MAIN EMPH
DEV
FM MOD
W/D CLIP
DETAIL N.L.E.
NL DE
MIX
PIC CONT
NC
GAIN
FREQUENCY
SYNC TIP
WHITE LEVEL
FM MODURATION
NL EMPHASIS
LOGIC
EE-VV DETAIL
TP3301
CLAMP
PICTURE CTL
VIDEO OUT
ART VHN
CT3201
CHAR. SIZE
IC3303
CLAMP
CCD
SCHMITT
1H DELAY LINE
X3301
Q3303
BUFFER
FL3303
L.P.F
VR3302
Y-BAL
Q3301 HEAD SW
REC. Y
RF. Y
EE
QR3001
V. EE Ⓛ
FROM SYSTEM CTL
REC GATE Ⓛ
FROM SERVO
ENV. SELECT
TO SERVO
HEAD AMP SW
FROM SERVO
HEAD SW
FROM SERVO
E. REC Ⓛ
FROM SYSTEM CTL
Q3004
+5V
(E. REC Ⓛ : ON)
LUMINANCE SIGNAL
4MHz
Q3304
AMP
FL3304
L.P.F.
FL3305
IC3304
COLOUR Ⓗ
Q3801 QR3801
COLOUR Ⓗ GENE. SW
IC3001
Q3002
Q3003
REC C
IC3801
REC CHROMA
1.5MHz
627K 3.8M 4.8M(Hz)
PB AMP
RF CHROMA
5.02MHz VCO
1/321
AFC COMP.
FREQ. DET
DIGITAL M.M
MMV
SUB MAIN C B.A.
TP3001
TP3001 PLAY 0.35Vp-p
Q3007
L3007,C3021
627kHz TRAP
Q3006
Q3005
FREQUENCY COMPENSATOR
VR3001
F. RESPO
REC GATE
REC C
REC Y
P3001-P501
REC-C
VR502
VR501
REC-Y
E. REC 5V
IC501
AMP
CURR AMP
TP508
REC 90mVp-p
TP507
1ST & 2ND AMP
HEAD SW
H SW
AGC DET
CHROMA AMP
PEAKING AMP
AGC AMP
ENVE SELECT
HEAD AMP OUTPUT
RF SIGNAL 120mVp-p
Q501 Q502
P502
VIDEO HEAD R'
VIDEO HEAD L'
VIDEO HEAD R
VIDEO HEAD L
HEAD AMP C.B.A.
620±5μm
L'(49μm)
R(35μm)
R'(49μm)
L (35μm)

TIMER & OPERATION BLOCK DIAGRAM


APPROX 13ms
OSD CS
OSD CLOCK
OSD DATA
IC7001
OSD CLOCK P7001 12
OSD DATA P7001 13
OSD CS P7001 14
TO OSC
13 P22 OSD CLOCK
14 P21 OSD DATA
15 P20 OSD CS Ⓛ
TIMER CLOCK P7001 8
TIMER DATA P7001 9
TO-FROM SYSTEM CTL
17 SERIAL CLOCK
18 SERIAL DATA OUT
19 SERIAL DATA IN
IC7003
N. SW 5.3V
RESET
24 INT1
QR7002
IC7002
PCCR 11
C1 15
C2 16
C3 1
OUT 3
22 P31 DATA OUT
21 P32 CLOCK
20 P33 MODE
23 P30
1 VCC
IC7004
RESET
27 RESET
N.SW 5.3V
BACK UP BATTERY
ON OFF
SW6301
BACK UP SW
MOTHER C.B.A.
P7501 4
P7001 4
4MHz
2VP-P
X7001, C7006
TIMER OSC
28
29
30
X7002, C7008
TIMER OSC FOR BACK UP
31
5VP-P
33KHz
N. SW 5.3V
D7037, 7041
Q7002
ALARM
8 P27 ALARM Ⓗ
D7038
Q7003
POWER
9 P26 POWER Ⓗ
GRID 0 39
GRID 12 51
SEG. 0 64
SEG. 12 52
GRID SIGNALS
SEGMENT SIGNALS
SCAN2 49
SCAN3 48
SCAN4 47
SCAN5 46
SCAN7 44
SCAN8 43
SCAN9 42
SCAN10 41
DATA 3 34
DATA 2 35
DATA 1 36
DATA 0 37
DP7001 (VSL0189)
0G 1G 6G 7G
S10 S9 S8 S3 S2 S1 S12
S11 S4 S5 S6 S7 S0
X2
SP LP
REC
VTR
AV
EW SU
MO TU WE
TH FR SA
1 2 3 4 5 6 7 8 VPS OTR
REMAIN
WRITE
ERASE
COUNT
M
RS
ON
OFF
Po
CH
M D
Col.2
Col.1
Dp.2
Dp.1
2G 3G 4G 5G 0G 8G 9G 10G 11G 12G
HOUR :3H
COUNTER : 0:00:00
12.8ms
SEG 0
SEG 1
SEG 2
SEG 3
SEG 4
SEG 5
SEG 6
SEG 7
SEG 8
SEG 9
SEG10
SEG11
SEG12
12.8ms
SCAN 2
SCAN 3
SCAN 4
SCAN 5
12.8ms
SCAN7
SCAN8
SCAN9
SCAN10
SW7004 REW
SW7003 PLAY
SW7002 STOP
SW7001 REC
SW7008 FF
SW7007 STILL
SW7006 ADV
SW7005 EJECT
SW7010 TIMER REC
SW7009 REC LOCK
SW7014 TRACKING ⊖
SW7013 TRACKING ⊕
SW7012 VTR
SW6509 ↓
SW6510 →
SW6511 −
SW6512 +
SW6505 MEMORY
SW6506 RESET
SW6507 CLOCK SET
SW6508 TIMER SET
SW6501 TIMER DATA ON/OFF
SW6502 RECALL
SW6503 T MODE
SW6504 CLOCK COUNTER
SW6513 REPERT
OPERATION C.B.A.

POWER SUPPLY SCHEMATIC DIAGRAM


C
B
A
1
2
3
4
5
6
7
P1102 ⚠
AC INLET
F1101 ⚠
250VT1.6A
C1145 ⚠
1500P
L1101
ELF18D290A ⚠
C1142
1500P ⚠
L1102
ELF18D290A ⚠
C1101
0.22 ⚠
R1101
330K ⚠
C1102
0.15 ⚠
D1102
S1WBA60 ⚠
C1108
400VB2
R1125
2R2
C1147
1500P ⚠
R1102
82K
R1103
82K
R1123
15K
R1124
15K
C1109
400V1
IC1101
STRD1816 ⚠
-0.2
-1.0
0
-6.1
V
R1106
68K
C1110
0.047
D1103
VSD0002
D1104
AP01C
-147.0
C1111
330P
D1107
MA165
C1113
4700P
C1114
16V47
C1137
0.022
D1106
MA4039
R1108
1800 ⚠
D1105
MA178
R1118
1
R1111
180
C1136
1
C1115
4700P
T1101
VLT0571 ⚠
P1
P2
B2
B1
S5
S1
S2
S6
S4
S3
S8
S7
D1108
ERA22-02
C1117
100P
C1118
50V100
D1109
RL2ZPLF-C4
C1119
20V680
D1113
MA2200
L1103
VLQ0335
C1120
20V680
D1110
MA165
C1121
50V10
D1111
11EQS04
C1122
10V330
D1112
ER883-004L17
C1127
6V470
C1128
0.01
C1135
0.01
C1129
0.01
C1130
0.01
IC1102
STK5392
POWER TR
ERROR AMP
POWER TR
ERROR AMP
POWER TR
ERROR AMP
44.1
16.3
13.5
12.3
23.1
6.5
5.4
5.1
R1113
1800
R1114
10K
C1134
0.01
C1123
50V10
C1125
10V100
C1124
10V100
C1126
16V47
C1149
820P
P1101
(TO MAIN)
1 REG.45V
2 N.SW.12V
3 PW.OFF (L)
4 U.REG14V
5 REG.12V
6 MT.GND
7 N.SWS.3V
8 REG.5V
9 GND
10 GND
11 REG.-29V
12 HEATER.+
13 HEATER.-
R1104
5600
C1131
0.01
12.9
16.3
12.5
D1114
MA4130
C1132
16V10
Q1102
2SD1330
(REG 12V)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

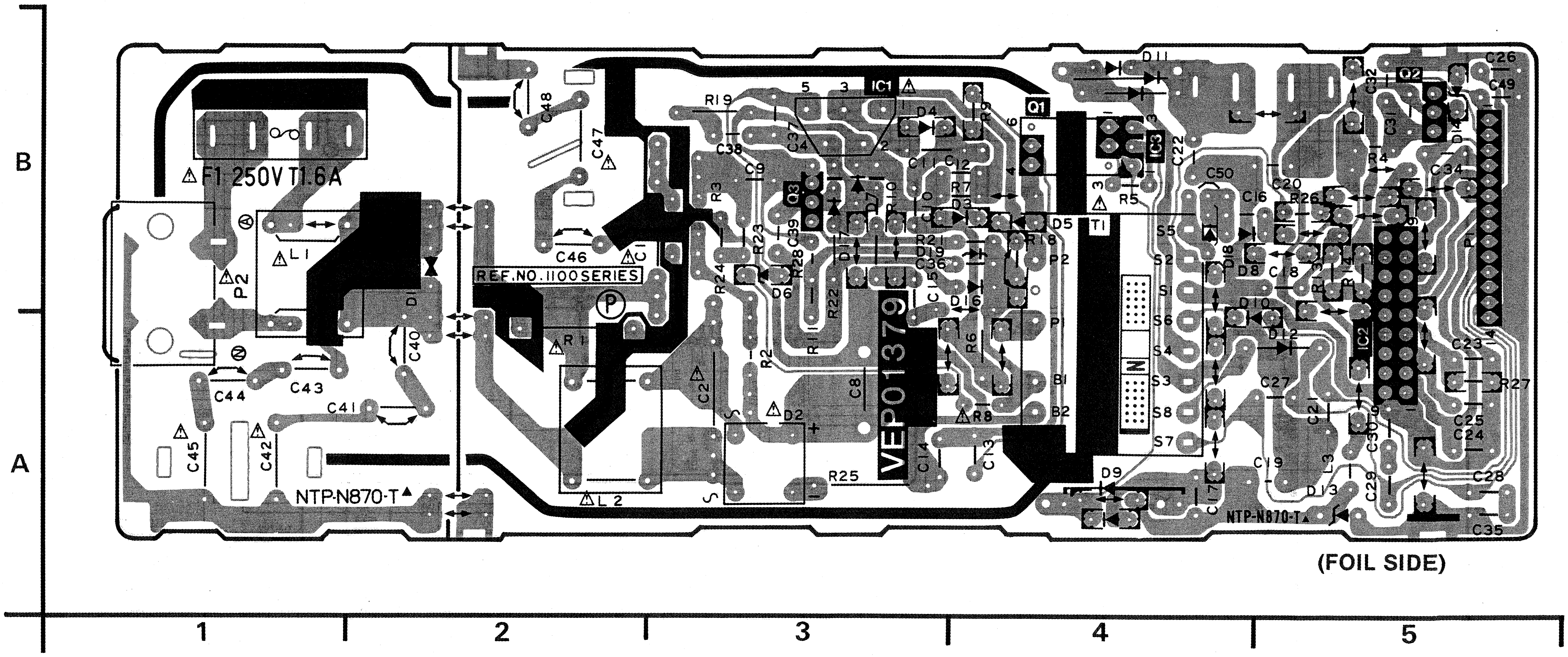
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

POWER SUPPLY C.B.A. (VEP01379L)

POWER SUPPLY C.B.A.	
Transistor	
Q1102	B-5
Integrated Circuit	
IC1101 IC1102	B-3 A-5
Connector	
P1101 P1102	B-5 B-2

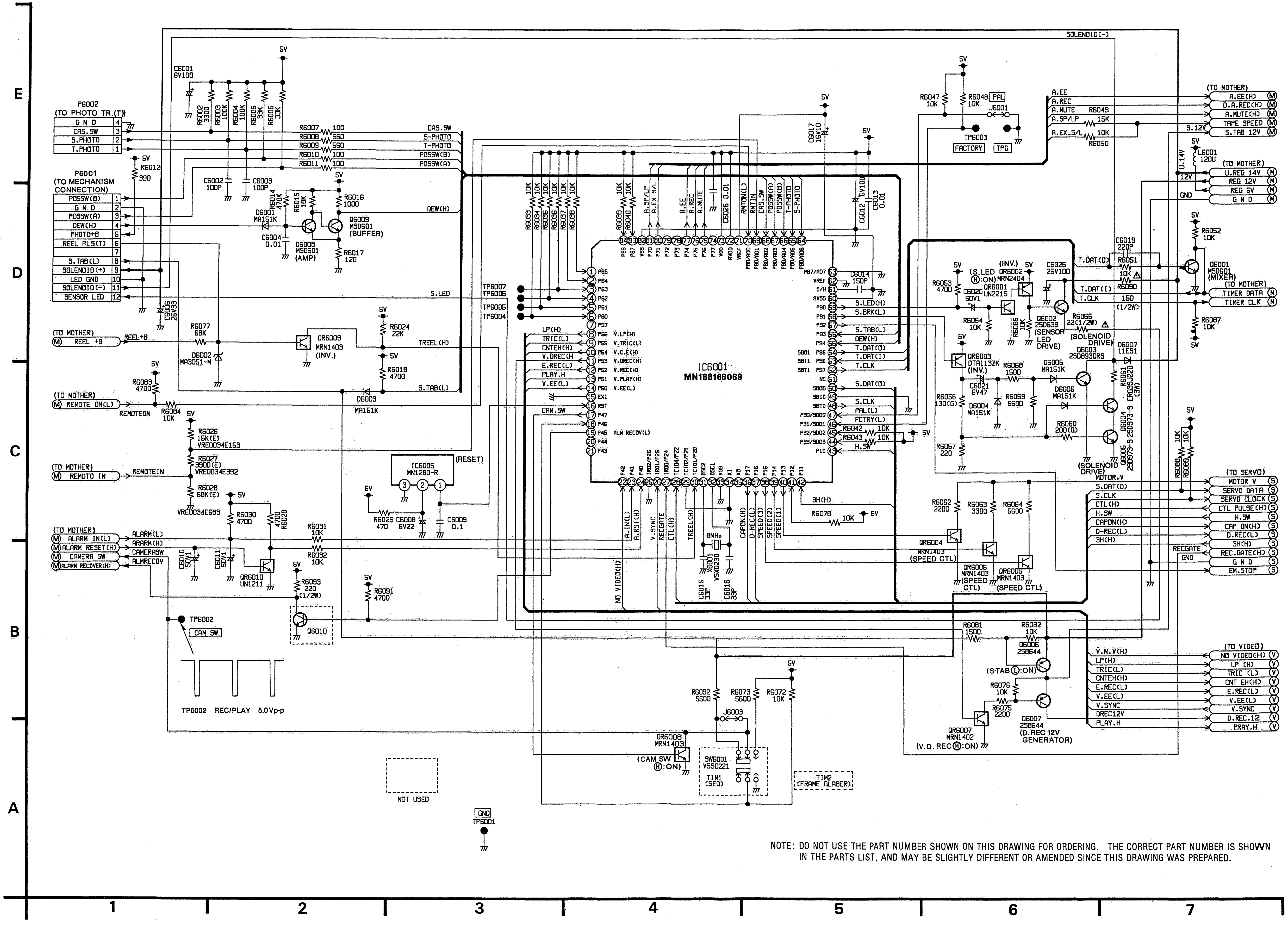
ADDRESS INFORMATION



B
A
1
2
3
4
5
⚠F1 250V T1.6A
⚠P2
⚠L1
D1
C40
C44
C43
C41
⚠C45
⚠C42
NTP-N870-T▲
C48
C47⚠
C46
⚠C1
REF.NO.1100SERIES
P
⚠R1
⚠L2
⚠C2
⚠D2
R25
R19
C38
C37
C9
R3
R23
R24
C39
R28
D6
D17
R22
R11
R2
C8
Q3
D7
R10
IC1⚠
D4
R9
C11
C12
R7
D3
R21
D19
C36
C15
D16
R6
R18
D5
P2
P1
B1
B2
⚠R8
C14
C13
VEP01379
Q1
IC3
C22
⚠
R5
T1
S5
S2
S1
S6
S4
S3
S8
S7
D11
C50
C16
C20
R26
D18
D8
C18
D10
D12
C27
C21
C19
D9
C17
D13
C29
L3
C30
Q2
C32
C31
D14
R4
C34
R13
R14
IC2
C26
C49
C23
R27
C25
C24
C28
C35
P1
NTP-N870-T▲

(FOIL SIDE)

SYSTEM CONTROL SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
P6002 (TO PHOTO TR.(T))
G N D
CAS.SW
S.PHOTO
T.PHOTO
P6001 (TO MECHANISM CONNECTION)
POSSW(B)
G N D
POSSW(A)
DEW(H)
PHOTO+B
REEL PLS(T)
S.TAB(L)
SOLENOID(+)
LED GND
SOLENOID(-)
SENSOR LED
(TO MOTHER) REEL +B
(TO MOTHER) REMOTE ON(L)
(TO MOTHER) REMOTO IN
(TO MOTHER) ALARM IN(L)
ALARM RESET(H)
CAMERA SW
ALARM RECOVER(H)
IC6001
MN188166069
IC6005
MN1280-R
(RESET)
Q6008 MSD601 (AMP)
Q6009 MSD601 (BUFFER)
QR6009 MRN1403 (INV.)
Q6010
QR6010 UN1211
TP6002 CAM SW
TP6002 REC/PLAY 5.0Vp-p
8MHz
X6001 VSX0230
SW6001 VSS0221
TIM1 (SED)
TIM2 (FRAME GLABER)
QR6008 MRN1403 (CAM SW Ⓗ:ON)
NOT USED
GND TP6001
SOLENOID(-)
TP6003 FACTORY TPG
(TO MOTHER)
A.EE(H)
D.A.REC(H)
A.MUTE(H)
TAPE SPEED
S.TAB 12V
(TO MOTHER)
U.REG 14V
REG 12V
REG 5V
G N D
Q6001 MSD601 (MIXER)
(TO MOTHER)
TIMER DATA
TIMER CLK
(S.LED Ⓗ:ON) QR6002 MRN2404
QR6001 UN2215
Q6002 2SD638 (SENSOR LED DRIVE)
QR6003 DTA113ZK (INV.)
Q6003 2SD893QRS
Q6004 2SD973-S
Q6005 2SD973-S (SOLENOID DRIVE)
D6007 11ES1
(TO SERVO)
MOTOR V
SERVO DATA
SERVO CLOCK
CTL PULSE(H)
H.SW
CAP ON(H)
D.REC(L)
3H(H)
REC.GATE(H)
G N D
EM.STOP
QR6004 MRN1403 (SPEED CTL)
QR6005 MRN1403 (SPEED CTL)
QR6006 MRN1403 (SPEED CTL)
Q6006 2SB644 (S-TAB Ⓛ:ON)
Q6007 2SB644 (D.REC 12V GENERATOR)
QR6007 MRN1402 (V.D. REC Ⓗ:ON)
(TO VIDEO)
ND VIDEO(H)
LP (H)
TRIC (L)
CNT EH(H)
E.REC(L)
V.EE(L)
V.SYNC
D.REC.12
PRAY.H

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

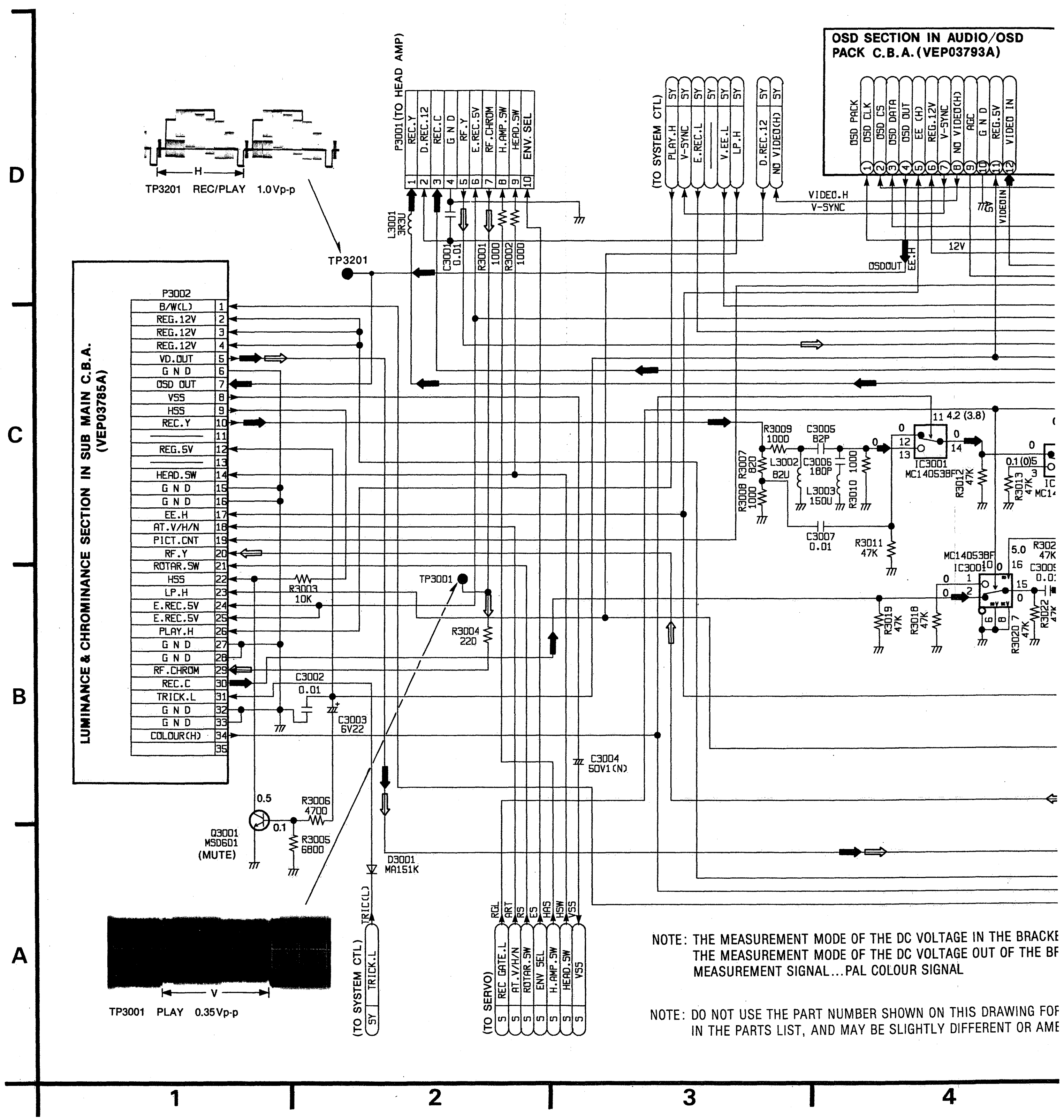
SYSTEM CONTROL ICs DC VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	5.0	5.0	5.0	5.0	5.0	5.0	0	0	5.0	0	0	0.5	0	0.1	0	5.0	2.5	5.0	5.0	0
REC	5.0	5.0	5.0	5.0	5.0	5.0	0	0	5.0	0	4.9	5.0	0	0.1	0	5.0	2.5	5.1	5.0	0
F.F.	5.0	5.0	5.0	5.0	5.0	5.0	0	0	5.0	0	0	0.5	0	0.1	0	5.0	2.5	5.0	5.0	0
REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0.1	5.0	5.0	0	4.8	5.1	0.1	0	0	2.2	2.2	0	0	4.9	0	1.6	0	0	0
REC	0	0.1	5.1	5.1	0	4.8	5.1	3.0	0	4.4	2.3	2.2	0	0	5.0	4.9	0	0	0	4.9
F.F.	0	0.1	5.0	5.0	0	4.8	5.1	2.8	0	2.3	2.3	2.2	0	0	4.9	4.9	4.9	0	4.9	0
REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	5.0	0	0	5.0	5.0	5.0	0	5.0	0	5.0	1.2	5.1	5.1	0.2	0.6	0	0	5.0	0.2	0
REC	5.1	0	2.5	5.1	5.1	5.1	0	4.9	0	4.9	0.2	4.9	4.3	0.4	0.6	0	0	5.0	0.9	0
F.F.	5.0	0	2.5	5.0	5.0	5.0	0	4.9	0	4.9	0.2	4.9	4.3	0.4	0.6	−0.1	0	5.0	0.9	0
REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0.7	0	0	5.0	5.0	2.0	5.0	2.0	4.1	5.0	5.0	5.0	5.0	0	0	0	4.9	0	0	0
REC	0.7	0	0	5.0	5.0	5.1	0	2.0	4.1	5.0	5.0	5.0	5.0	0	0	5.0	4.9	0	0	0
F.F.	0.7	0	0	5.0	5.0	2.0	5.0	2.0	4.1	5.0	5.0	5.0	5.0	0	0	0	4.9	0	0	0
REF. NO.	IC6001										IC6005									
MODE	81	82	83	84							1	2	3							
STOP	0	0	5.0	5.0							5.0	5.0	0							
REC	0	0	5.0	5.0							5.0	5.1	0							
F.F.	0	0	5.0	5.0							5.0	5.0	0							

SYSTEM CONTROL TRs DC VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6003			Q6004			Q6005			Q6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	5.1	0.1	0.2	16.2	0	0	16.2	0.2	0.8	16.2	1.0	0	0.9	0	12.3	12.3	11.5
REC	0	4.3	0.2	0.8	14.0	0.8	0	15.9	0.2	0.2	15.9	0.3	0	0.2	0	12.3	12.1	11.5
F.F.	0	4.3	0.2	0.8	14.1	0.8	0	16.0	0.2	0.3	16.0	0.3	0	0.3	0	12.3	12.3	11.5
REF. NO.	Q6007			Q6008			Q6009											
MODE	E	C	B	E	C	B	E	C	B									
STOP	12.3	−0.2	12.2	0.6	1.2	0.4	0.6	0.6	1.2									
REC	12.1	12.0	11.4	0.6	1.2	0.4	0.6	0.6	1.2									
F.F.	12.3	−0.2	12.2	0.6	1.2	0.4	0.6	0.6	1.2									
REF. NO.	QR6001			QR6002			QR6003			QR6004			QR6005			QR6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	5.0	0	5.1	0	5.0	5.1	0	5.0	0	14.9	0	0	14.9	0	0	14.9	0
REC	0	4.3	−0.4	5.1	0.8	4.3	5.1	0	5.0	0	0.1	4.9	0	11.2	0	0	11.2	0
F.F.	0	4.3	−0.4	5.1	0.8	4.3	5.1	0	4.9	0	12.3	0	0	0.1	4.9	0	12.3	0
REF. NO.	QR6007			QR6008			QR6009											
MODE	E	C	B	E	C	B	E	C	B									
STOP	0	12.2	0	0	12.3	0	0	0	2.4									
REC	0	0.1	4.9	0	6.1	2.5	0	4.4	2.0									
F.F.	0	12.2	0	0	6.2	2.5	0	2.3	1.3									

VIDEO SCHEMATIC DIAGRAM


D
C
B
A
1
2
3
4
TP3201 REC/PLAY 1.0Vp-p
H
TP3201
TP3001
TP3001 PLAY 0.35Vp-p
V
P3001(TO HEAD AMP)
REC.Y
D.REC.12
REC.C
G N D
RF.Y
E.REC.5V
RF.CHROM
H.AMP.SW
HEAD.SW
ENV.SEL
(TO SYSTEM CTL)
PLAY.H
V-SYNC
E.REC.L
V.EE.L
LP.H
D.REC.12
NO VIDEO(H)
OSD SECTION IN AUDIO/OSD PACK C.B.A.(VEP03793A)
OSD PACK
OSD CLK
OSD CS
OSD DATA
OSD OUT
EE (H)
REG.12V
V-SYNC
NO VIDEO(H)
AGC
G N D
REG.5V
VIDEO IN
VIDEO.H
V-SYNC
OSDOUT
12V
LUMINANCE & CHROMINANCE SECTION IN SUB MAIN C.B.A. (VEP03785A)
P3002
B/W(L)
REG.12V
REG.12V
REG.12V
VD.OUT
G N D
OSD OUT
VSS
HSS
REC.Y
REG.5V
HEAD.SW
G N D
G N D
EE.H
AT.V/H/N
PICT.CNT
RF.Y
ROTAR.SW
HSS
LP.H
E.REC.5V
E.REC.5V
PLAY.H
G N D
G N D
RF.CHROM
REC.C
TRICK.L
G N D
G N D
COLOUR(H)
L3001 3R3U
C3001 0.01
R3001 1000
R3002 1000
R3003 10K
R3004 220
C3002 0.01
C3003 6V22
C3004 50V1(N)
Q3001 MSD601 (MUTE)
R3006 4700
R3005 6800
D3001 MA151K
R3009 1000
C3005 82P
R3007 820
R3008 1000
L3002 82U
C3006 180P
L3003 150U
R3010 1000
C3007 0.01
R3011 47K
IC3001 MC14053BF
R3012 47K
R3013 47K
R3018 47K
R3019 47K
R3020 47K
R3021 47K
(TO SYSTEM CTL)
TRICK.L
TRIC(L)
(TO SERVO)
REC GATE.L
AT.V/H/N
ROTAR.SW
ENV.SEL
H.AMP.SW
HEAD.SW
VSS
RGL
RRT
RS
ES
HAS
HSW
VSS

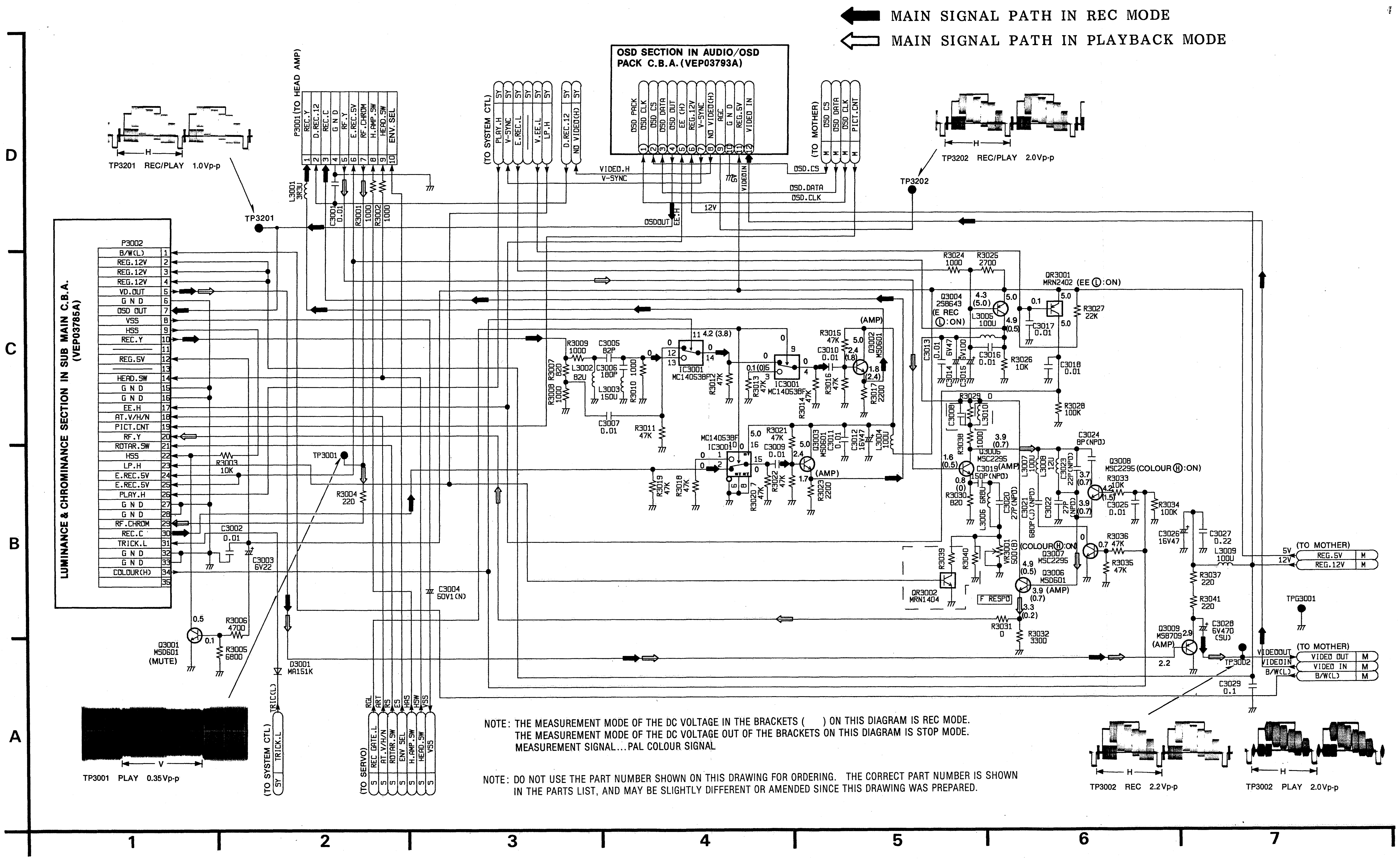
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKE
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BF
MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOF
IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AME

VIDEO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE

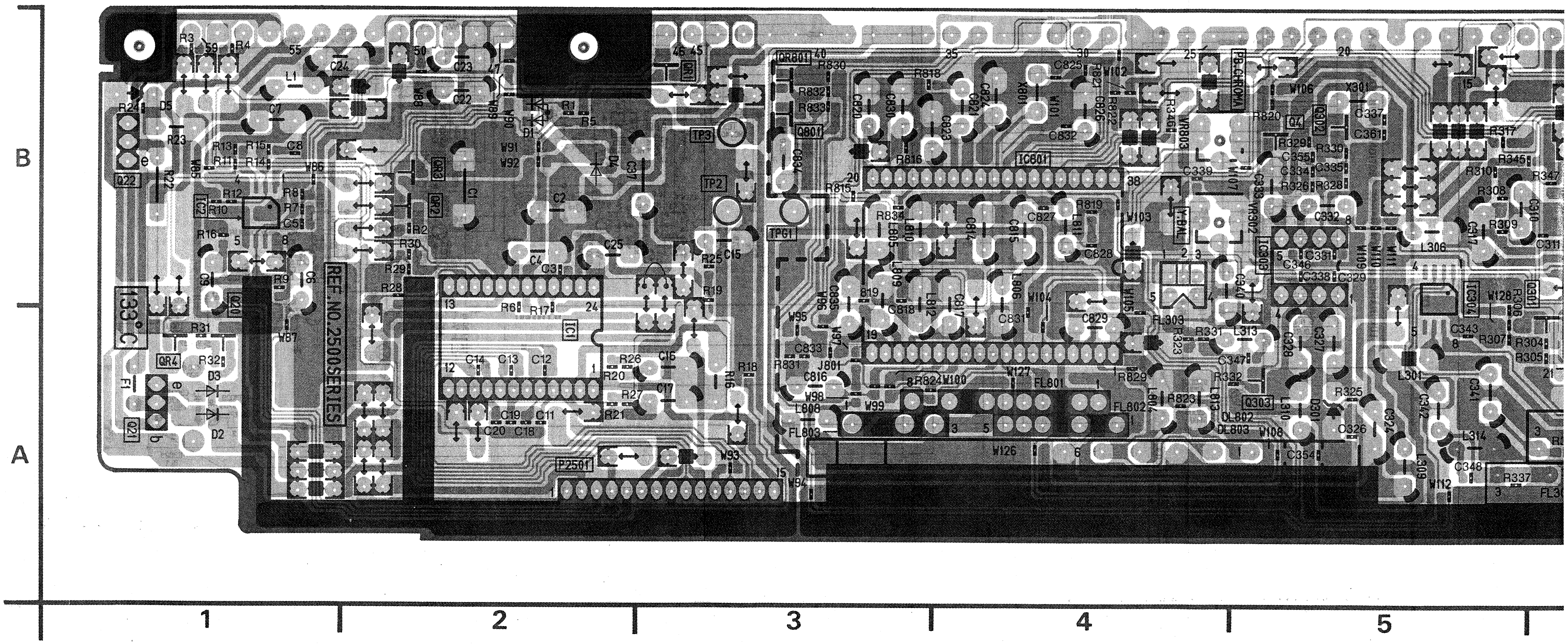
MAIN SIGNAL PATH IN PLAYBACK MODE


D
C
B
A
1
2
3
4
5
6
7
TP3201 REC/PLAY 1.0Vp-p
TP3201
P3001 (TO HEAD AMP)
REC.Y
D.REC.12
REC.C
G N D
RF.Y
E.REC.5V
RF.CHROM
H.AMP.SW
HEAD.SW
ENV.SEL
L3001 3R3U
C3001 0.01
R3001 1000
R3002 1000
(TO SYSTEM CTL)
PLAY.H
V-SYNC
E.REC.L
V.EE.L
LP.H
D.REC.12
NO VIDEO(H)
OSD SECTION IN AUDIO/OSD PACK C.B.A.(VEP03793A)
OSD PACK
OSD CLK
OSD CS
OSD DATA
OSD OUT
EE (H)
REG.12V
V-SYNC
NO VIDEO(H)
AGC
G N D
REG.5V
VIDEO IN
VIDEO.H
V-SYNC
OSDOUT
EE.H
12V
5V
VIDEOIN
(TO MOTHER)
OSD CS
OSD DATA
OSD CLK
PICT.CNT
OSD.CS
OSD.DATA
OSD.CLK
TP3202 REC/PLAY 2.0Vp-p
TP3202
LUMINANCE & CHROMINANCE SECTION IN SUB MAIN C.B.A. (VEP03785A)
P3002
B/W(L)
REG.12V
VD.OUT
OSD OUT
VSS
HSS
REC.Y
REG.5V
HEAD.SW
EE.H
AT.V/H/N
PICT.CNT
RF.Y
ROTAR.SW
LP.H
E.REC.5V
PLAY.H
RF.CHROM
REC.C
TRICK.L
COLOUR(H)
R3003 10K
TP3001
R3004 220
C3002 0.01
C3003 6V22
C3004 50V1(N)
Q3001 MSD601 (MUTE)
R3006 4700
R3005 6800
D3001 MA151K
TRIC(L)
(TO SYSTEM CTL)
TRICK.L
(TO SERVO)
REC GATE.L
AT.V/H/N
ROTAR.SW
E5
ENV SEL
H.AMP.SW
HEAD.SW
VSS
R3009 1000
C3005 82P
L3002 82U
C3006 180P
L3003 150U
R3010 1000
R3007 820
R3008 1000
C3007 0.01
R3011 47K
IC3001 MC14053BF
R3012 47K
R3013 47K
R3014 47K
R3015 47K
C3010 0.01
R3016 47K
Q3002 MSD601 (AMP)
R3017 2200
R3021 47K
C3009 0.01
Q3003 MSD601 (AMP)
C3011 0.01
C3012 16V47
L3004 100U
R3019 47K
R3018 47K
R3020 47K
R3022 47K
R3023 2200
R3024 1000
R3025 2700
QR3001 MRN2402 (EE Ⓛ:ON)
Q3004 2SB643 (E REC Ⓛ:ON)
L3005 100U
C3017 0.01
R3027 22K
C3013 0.01
C3014 6V47
C3015 6V100
C3016 0.01
R3026 10K
C3018 0.01
R3028 100K
R3029
C3008
L3010
R3038 1000
Q3005 MSC2295 (AMP)
C3019 150P(NPO)
R3030 820
L3006 6R8U
C3020 27P(NPO)
C3021 680P(J)(NPO)
L3007 100U
L3008 12U
C3022
C3023 22P(NPO)
C3024 8P(NPO)
Q3008 MSC2295 (COLOUR Ⓗ:ON)
R3033 10K
C3025 0.01
R3034 100K
R3036 47K
R3035 47K
Q3007 MSC2295 (COLOUR Ⓗ:ON)
Q3006 MSD601 (AMP)
VR3001 500(B)
R3039
R3040
QR3002 MRN1404
F RESPO
R3031 0
R3032 3300
C3026 16V47
C3027 0.22
L3009 100U
R3037 220
R3041 220
C3028 6V470 (SU)
Q3009 MSB709 (AMP)
TP3002
C3029 0.1
TPG3001
(TO MOTHER)
REG.5V
REG.12V
VIDEO OUT
VIDEO IN
B/W(L)
VIDEOOUT
VIDEOIN
TP3001 PLAY 0.35Vp-p
TP3002 REC 2.2Vp-p
TP3002 PLAY 2.0Vp-p

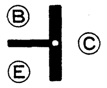
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS REC MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE.
MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

SUB MAIN C.B.A. (VEP03785A)

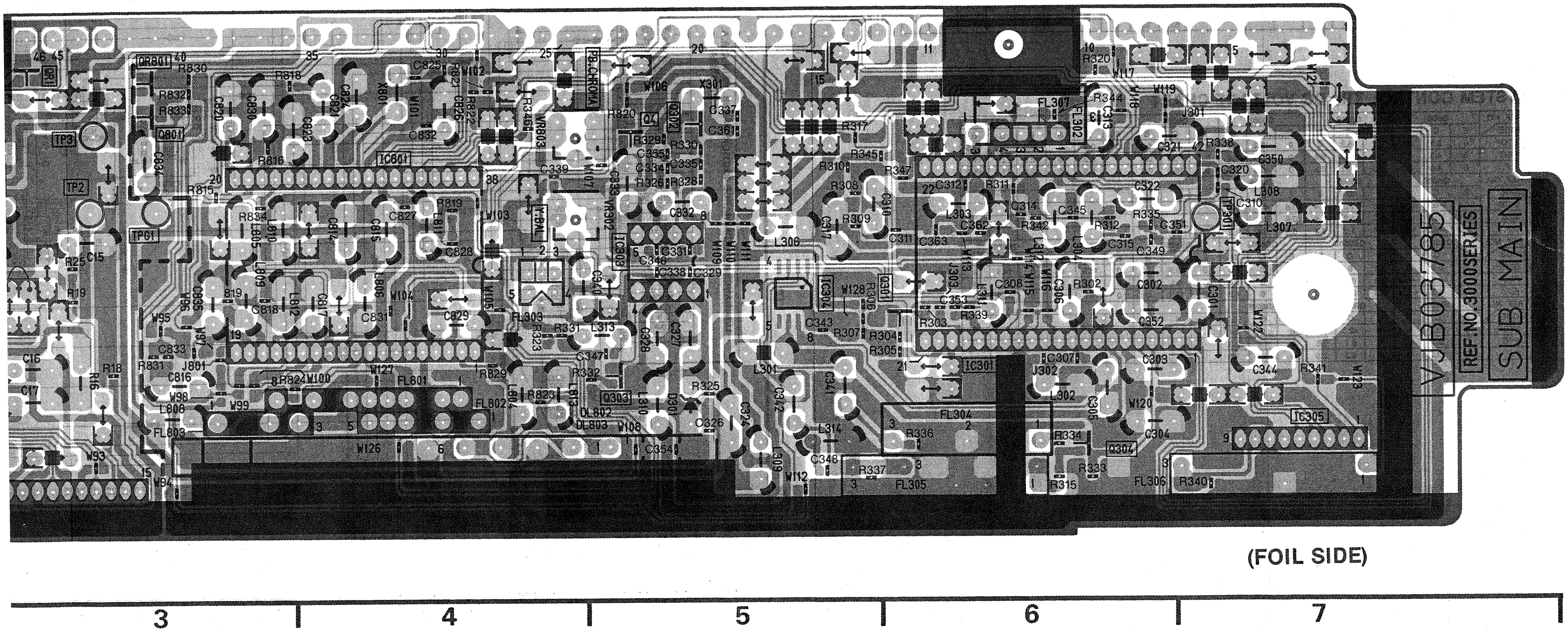

B
A
1
2
3
4
5
REF.NO.2500SERIES
133°C
Q22
Q21
QR4
F1
D2
D3
D5
R3
R4
R24
R23
R22
R31
R32
R13
R11
R15
R14
R12
R10
R16
R8
R7
C5
R9
Q20
C9
C6
W85
W86
W87
W88
W89
W90
W91
W92
L1
C7
C8
C22
C23
C24
QR1
QR2
QR3
C1
C2
C3
C4
C25
D1
D4
R1
R2
R5
R6
R17
R28
R29
R30
IC1
IC3
C11
C12
C13
C14
C18
C19
C20
R20
R21
R26
R27
C15
C16
C17
R16
R18
R19
R25
TP2
TP3
TPG1
P2501
W93
W94
W95
W96
W97
W98
W99
W100
QR801
Q801
IC801
R830
R832
R833
R815
R816
R818
R819
R824
R829
R831
R834
C820
C821
C823
C824
C825
C826
C827
C828
C829
C830
C831
C832
C833
C834
C814
C815
C816
C817
C818
X801
W101
W102
W103
W104
W105
W106
W107
W108
W109
W110
W111
W112
W126
W127
W128
L805
L806
L808
L809
L810
L811
L812
L813
FL801
FL802
FL803
J801
DL802
DL803
PB.CHROMA
Y.BAL
R346
VR302
VR303
IC303
IC304
Q4
Q302
Q303
Q301
X301
R317
R320
R323
R325
R326
R329
R330
R331
R332
R337
R345
R347
R304
R305
R306
R307
R308
R309
R310
C326
C327
C328
C329
C331
C332
C333
C334
C335
C337
C338
C339
C340
C341
C342
C343
C346
C347
C348
C354
C355
C361
C310
C311
C317
C324
L301
L306
L309
L310
L313
L314
FL303
D301

TRANSISTOR INFORMATION



SUB MAIN C.B.A.	
Transistor	
Q2521	A-1
Q2522	B-1
Q3301	B-6
Q3302	B-5
Q3303	A-5
Q3304	A-6
Q3801	B-3
Q3804	B-5
Transistor & Resistor	
QR2501	B-3
QR2502	B-2
QR2503	B-2
QR3801	B-3
Integrated Circuit	
IC2501	A-2
IC2502	B-1
IC3301	B-6
IC3303	B-5
IC3304	B-5
IC3801	B-4
Test Point	
TP2502	B-3
TP2503	B-3
TP3301	B-7
TPGND1	B-3
Adjustment	
VR3303	B-4
VR3803	B-4
Connector	
P2501	A-2

ADDRESS INFORMATION

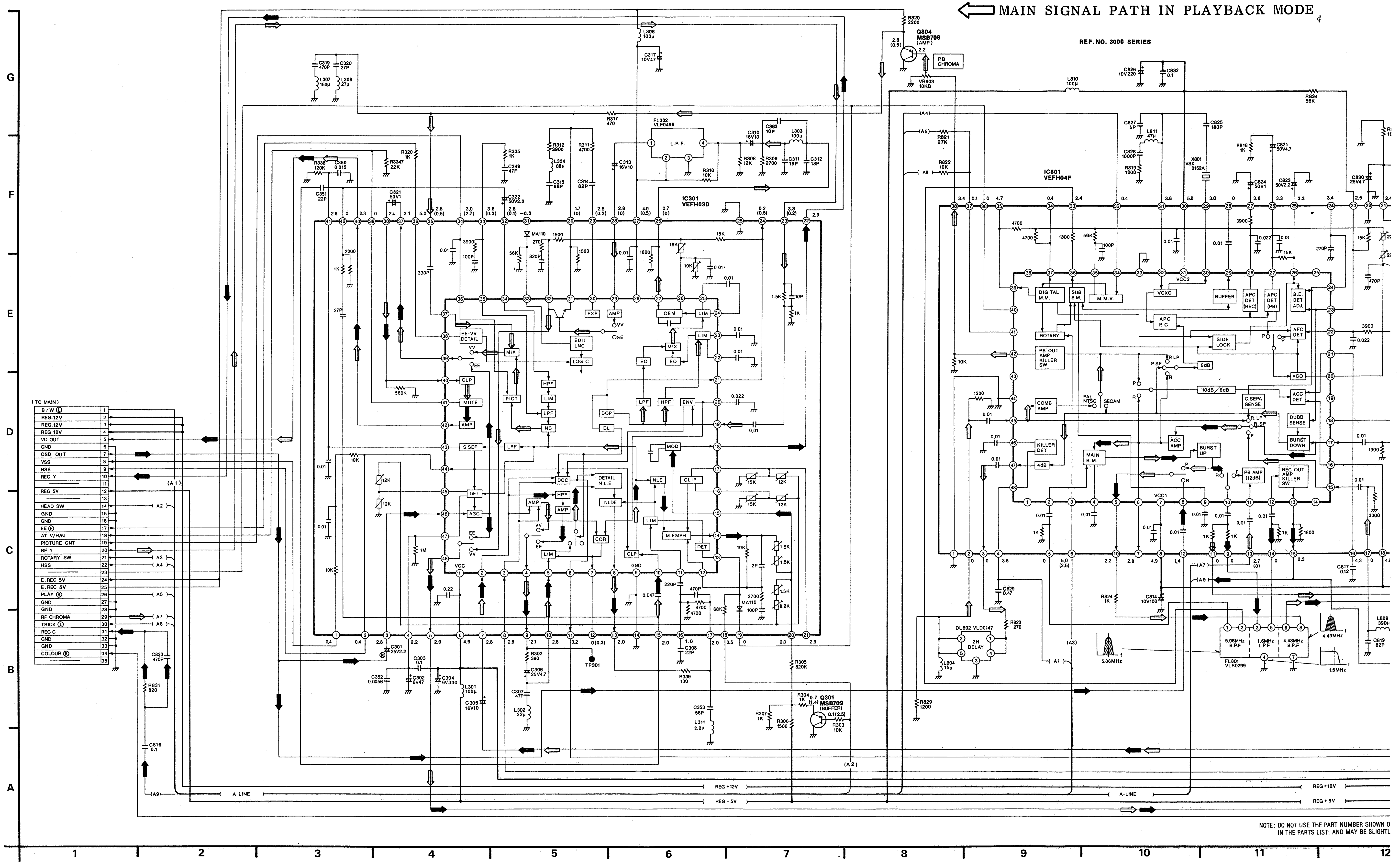

VJB03785
REF. NO. 3000SERIES
SUB MAIN
IC801
IC301
IC305
IC303
IC304
3
4
5
6
7

(FOIL SIDE)

SUB MAIN (LUMINANCE & CHROMINANCE Section) SCHEMATIC DIAGRAM

◀ MAIN SIGNAL PATH IN REC MODE

◁ MAIN SIGNAL PATH IN PLAYBACK MODE


REF. NO. 3000 SERIES
IC301 VEFH03D
IC801 VEFH04F
Q804 MSB709 (AMP)
Q301 MSB709 (BUFFER)
P.B CHROMA
FL302 VLF0499
L.P.F.
DL802 VLD0147
2H DELAY
FL801 VLF0299
5.06MHz B.P.F
1.6MHz L.P.F
4.43MHz B.P.F
5.06MHz
4.43MHz
1.6MHz
X801 VSX 0162A
TP301
(TO MAIN)
B/W Ⓛ 1
REG.12V 2
REG.12V 3
REG.12V 4
VD OUT 5
GND 6
OSD OUT 7
VSS 8
HSS 9
REC Y 10
11
REG 5V 12
13
HEAD SW 14
GND 15
GND 16
EE Ⓗ 17
AT V/H/N 18
PICTURE CNT 19
RF Y 20
ROTARY SW 21
HSS 22
23
E.REC 5V 24
E.REC 5V 25
PLAY Ⓗ 26
GND 27
GND 28
RF CHROMA 29
TRICK Ⓛ 30
REC C 31
GND 32
GND 33
COLOUR Ⓗ 34
35
EE-VV DETAIL
MIX
EDIT LNC
LOGIC
EXP
AMP
DEM
LIM
EQ
CLP
MUTE
PICT
HPF
LPF
NC
S.SEP
DET
AGC
DOC
DETAIL N.L.E.
NLDE
NLE
CLIP
COR
M.EMPH
MOD
DOP
DL
ENV
DIGITAL M.M.
SUB B.M.
M.M.V.
VCXO
BUFFER
APC DET (REC)
APC DET (PB)
B.E. DET ADJ.
APC P.C.
ROTARY
SIDE LOCK
AFC DET
PB OUT AMP KILLER SW
6dB
VCO
10dB/6dB
C.SEPA SENSE
ACC DET
COMB AMP
PAL NTSC
SECAM
DUBB SENSE
BURST DOWN
KILLER DET
MAIN B.M.
ACC AMP
BURST UP
4dB
PB AMP (12dB)
REC OUT AMP KILLER SW
VCC1
VCC2
A-LINE
REG +12V
REG +5V
(A1)
(A2)
(A3)
(A4)
(A5)
(A7)
(A8)
(A9)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

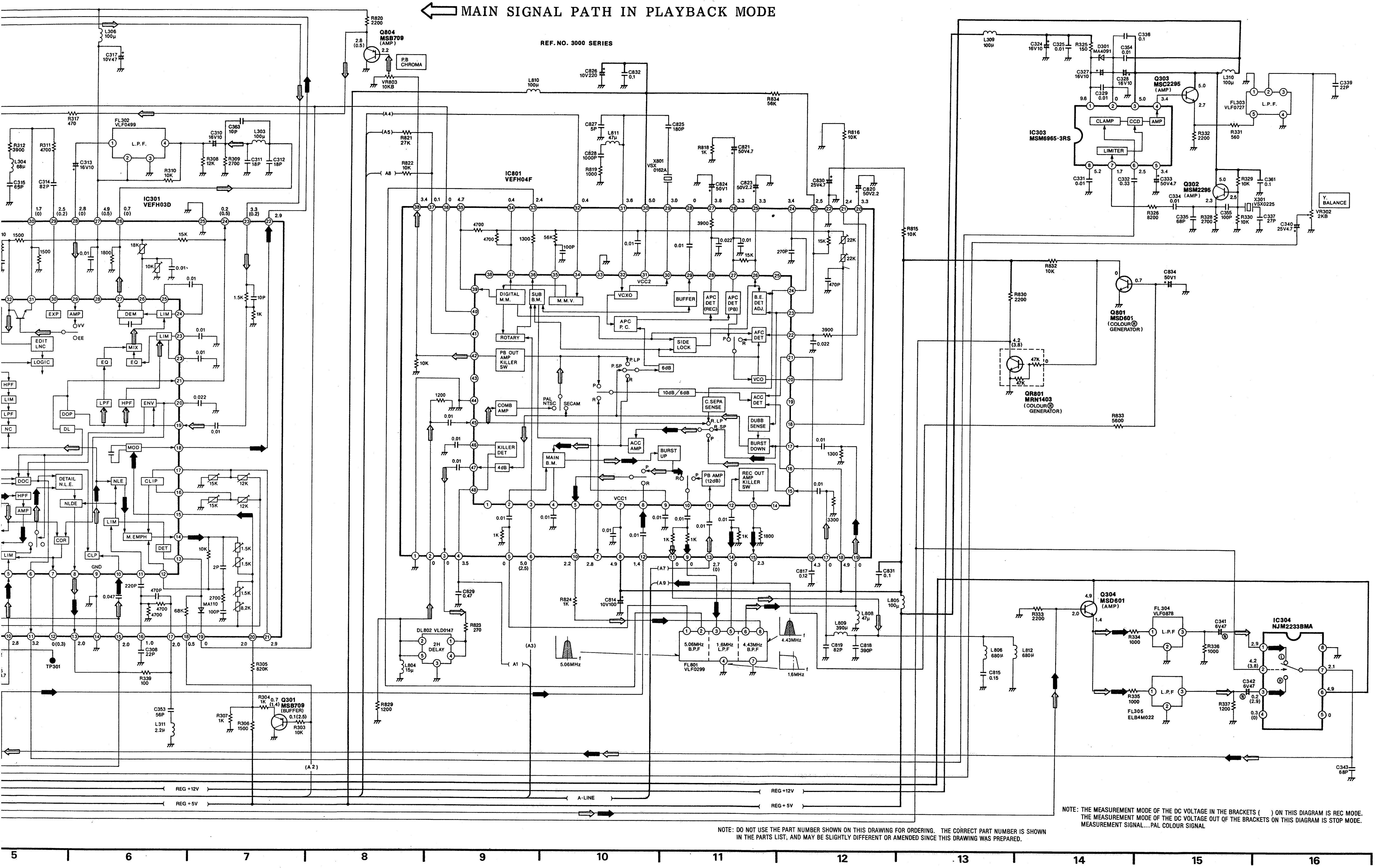
NOTE: DO NOT USE THE PART NUMBER SHOWN O
IN THE PARTS LIST, AND MAY BE SLIGHTL

;CHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE

REF. NO. 3000 SERIES


IC301 VEFH03D
IC801 VEFH04F
IC303 MSM6965-3RS
IC304 NJM2233BMA
Q804 MSB709 (AMP)
Q301 MSB709 (BUFFER)
Q303 MSC2295 (AMP)
Q302 MSM2295 (AMP)
Q601 MSD601 (COLOUR Ⓗ GENERATOR)
QR801 MRN1403 (COLOUR Ⓗ GENERATOR)
Q304 MSD601 (AMP)
FL302 VLF0499
FL303 VLF0727
FL304 VLF0878
FL305 ELB4M022
FL801 VLF0299
DL802 VLD0147
X801 VSX 0162A
X301 VSX0225
VR302 2KB
Y. BALANCE
VR803 10KB
P.B CHROMA
L.P.F.
5.06MHz B.P.F
1.6MHz L.P.F
4.43MHz B.P.F
2H DELAY
DIGITAL M.M.
SUB B.M.
M.M.V.
VCXO
BUFFER
APC DET (REC)
APC DET (PB)
B.E. DET ADJ.
APC P.C.
SIDE LOCK
AFC DET
ROTARY
PB OUT AMP KILLER SW
VCO
COMB AMP
C.SEPA SENSE
ACC DET
ACC AMP
BURST UP
DUBB SENSE
BURST DOWN
KILLER DET
MAIN B.M.
PB AMP (12dB)
REC OUT AMP KILLER SW
CLAMP
CCD
AMP
LIMITER
EXP
DEM
LIM
MIX
EQ
EDIT LNC
LOGIC
LPF
HPF
ENV
DOP
DL
NC
MOD
DOC
DETAIL N.L.E.
NLE
NLDE
CLIP
COR
M. EMPH
DET
CLP
GND
TP301
REG +12V
REG + 5V
A-LINE
5.06MHz
4.43MHz
1.6MHz
PAL NTSC
SECAM
6dB
10dB / 6dB
4dB

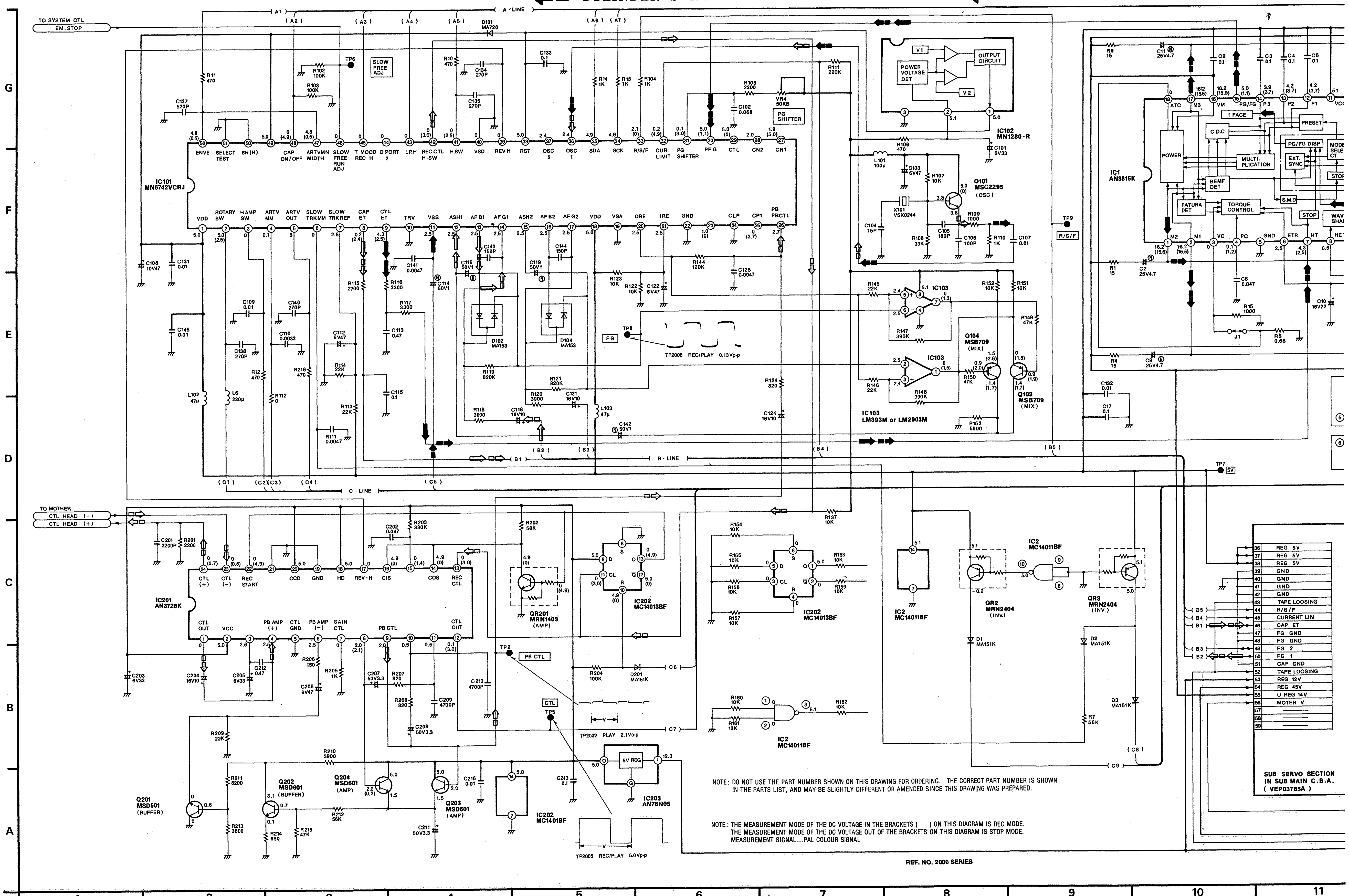
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS REC MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE.
MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

SERVO SCHEMATIC DIAGRAM

CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP

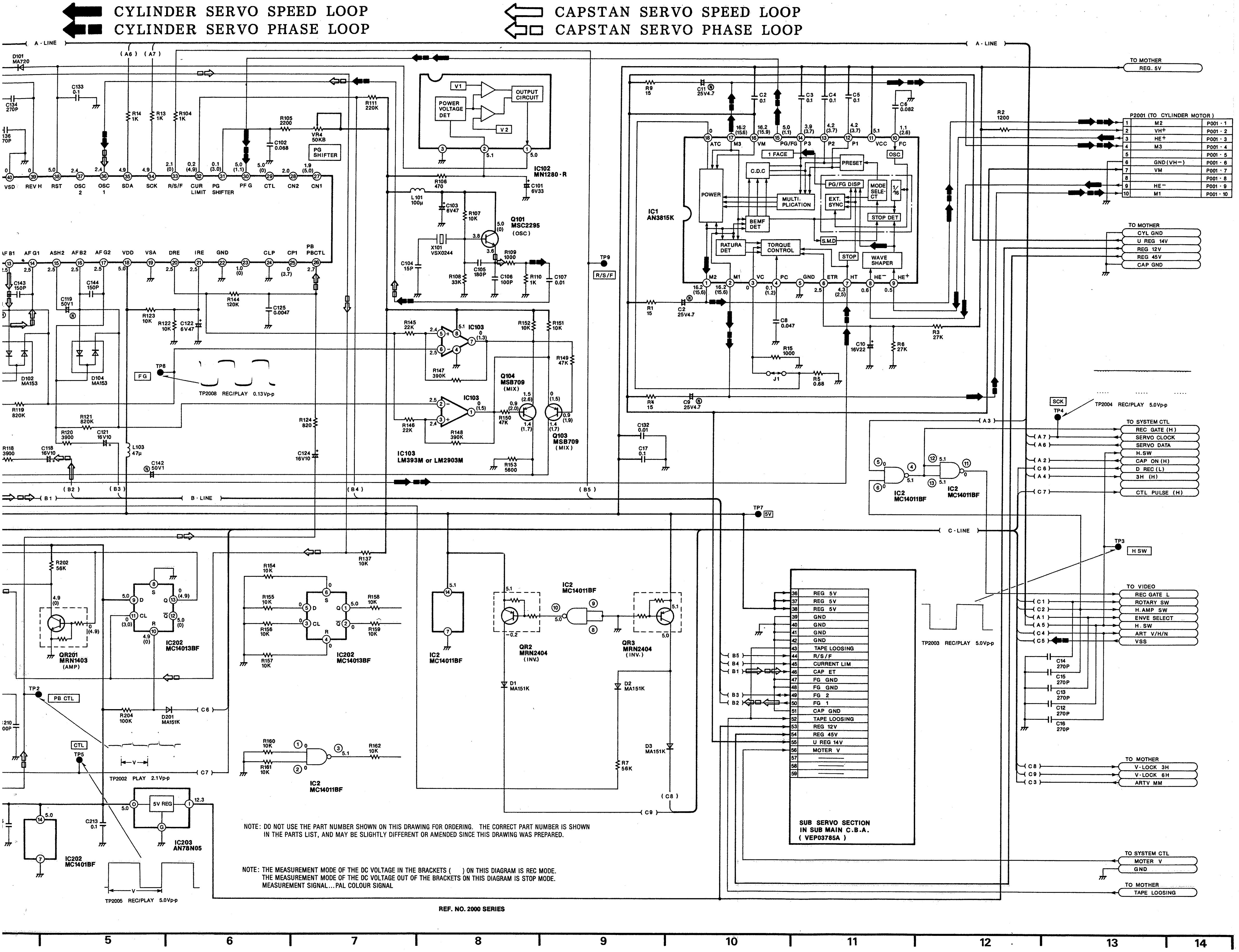
CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP


TO SYSTEM CTL
EM. STOP
A-LINE
B-LINE
C-LINE
IC101 MN6742VCRJ
IC102 MN1280-R
Q101 MSC2295 (OSC)
X101 VSX0244
IC103 LM393M or LM2903M
Q104 MSB709 (MIX)
Q103 MSB709 (MIX)
D101 MA720
D102 MA153
D104 MA153
SLOW FREE ADJ
PG SHIFTER
FG
TP2008 REC/PLAY 0.13Vp-p
TP6
TP8
TP9
R/S/F
POWER VOLTAGE DET
OUTPUT CIRCUIT
IC1 AN3815K
ATC
POWER
C.D.C
MULTI-PLICATION
BEMF DET
RATURA DET
TORQUE CONTROL
PRESET
PG/FG DISP
EXT. SYNC
S.M.D
STOP
1 FACE
TP7
5V
TO MOTHER
CTL HEAD (-)
CTL HEAD (+)
IC201 AN3726K
QR201 MRN1403 (AMP)
IC202 MC14013BF
D201 MA151K
TP2
PB CTL
CTL
TP5
TP2002 PLAY 2.1Vp-p
TP2005 REC/PLAY 5.0Vp-p
IC203 AN78N05
5V REG
Q201 MSD601 (BUFFER)
Q202 MSD601 (BUFFER)
Q204 MSD601 (AMP)
Q203 MSD601 (AMP)
IC2 MC14011BF
QR2 MRN2404 (INV.)
QR3 MRN2404 (INV.)
D1 MA151K
D2 MA151K
D3 MA151K
36 REG 5V
37 REG 5V
38 REG 5V
39 GND
40 GND
41 GND
42 GND
43 TAPE LOOSING
44 R/S/F
45 CURRENT LIM
46 CAP ET
47 FG GND
48 FG GND
49 FG 2
50 FG 1
51 CAP GND
52 TAPE LOOSING
53 REG 12V
54 REG 45V
55 U REG 14V
56 MOTER V
SUB SERVO SECTION IN SUB MAIN C.B.A. (VEP03785A)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS REC MODE. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE. MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

REF. NO. 2000 SERIES


CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP

A - LINE
B - LINE
C - LINE
IC102
MN1280 - R
POWER VOLTAGE DET
OUTPUT CIRCUIT
V1
V2
Q101
MSC2295
(OSC)
X101
VSX0244
IC103
LM393M or LM2903M
Q104
MSB709
(MIX)
Q103
MSB709
(MIX)
IC1
AN3815K
POWER
C.D.C
1 FACE
PRESET
PG/FG DISP
MODE SELECT
1/16
MULTI. PLICATION
EXT. SYNC
STOP DET
BEMF DET
RATURA DET
TORQUE CONTROL
S.M.D
STOP
WAVE SHAPER
OSC
VSD
REV H
RST
OSC 2
OSC 1
SDA
SCK
R/S/F
CUR LIMIT
PG SHIFTER
PF G
CTL
CN2
CN1
AF B1
AF G1
ASH2
AF B2
AF G2
VDD
VSA
DRE
IRE
GND
CLP
CP1
PB PBCTL
TP9
R/S/F
TP8
FG
TP2008 REC/PLAY 0.13Vp-p
TO MOTHER
REG. 5V
P2001 (TO CYLINDER MOTOR)
1 M2 P001 - 1
2 VH+ P001 - 2
3 HE+ P001 - 3
4 M3 P001 - 4
5 P001 - 5
6 GND(VH−) P001 - 6
7 VM P001 - 7
8 P001 - 8
9 HE− P001 - 9
10 M1 P001 - 10
TO MOTHER
CYL GND
U REG 14V
REG 12V
REG 45V
CAP GND
SCK
TP4
TP2004 REC/PLAY 5.0Vp-p
TO SYSTEM CTL
REC GATE (H)
SERVO CLOCK
SERVO DATA
H.SW
CAP ON (H)
D REC (L)
3H (H)
CTL PULSE (H)
IC2
MC14011BF
TP7
5V
TP3
H SW
TO VIDEO
REC GATE L
ROTARY SW
H.AMP SW
ENVE SELECT
H. SW
ART V/H/N
VSS
TP2003 REC/PLAY 5.0Vp-p
36 REG 5V
37 REG 5V
38 REG 5V
39 GND
40 GND
41 GND
42 GND
43 TAPE LOOSING
44 R/S/F
45 CURRENT LIM
46 CAP ET
47 FG GND
48 FG GND
49 FG 2
50 FG 1
51 CAP GND
52 TAPE LOOSING
53 REG 12V
54 REG 45V
55 U REG 14V
56 MOTER V
SUB SERVO SECTION
IN SUB MAIN C.B.A.
(VEP03785A)
TO MOTHER
V-LOCK 3H
V-LOCK 6H
ARTV MM
TO SYSTEM CTL
MOTER V
GND
TO MOTHER
TAPE LOOSING
QR201
MRN1403
(AMP)
IC202
MC14013BF
QR2
MRN2404
(INV.)
QR3
MRN2404
(INV.)
D1
MA151K
D2
MA151K
D3
MA151K
D201
MA151K
TP2
PB CTL
CTL
TP5
TP2002 PLAY 2.1Vp-p
5V REG
IC203
AN78N05
IC202
MC1401BF
TP2005 REC/PLAY 5.0Vp-p
5
6
7
8
9
10
11
12
13
14

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS REC MODE. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE. MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

REF. NO. 2000 SERIES

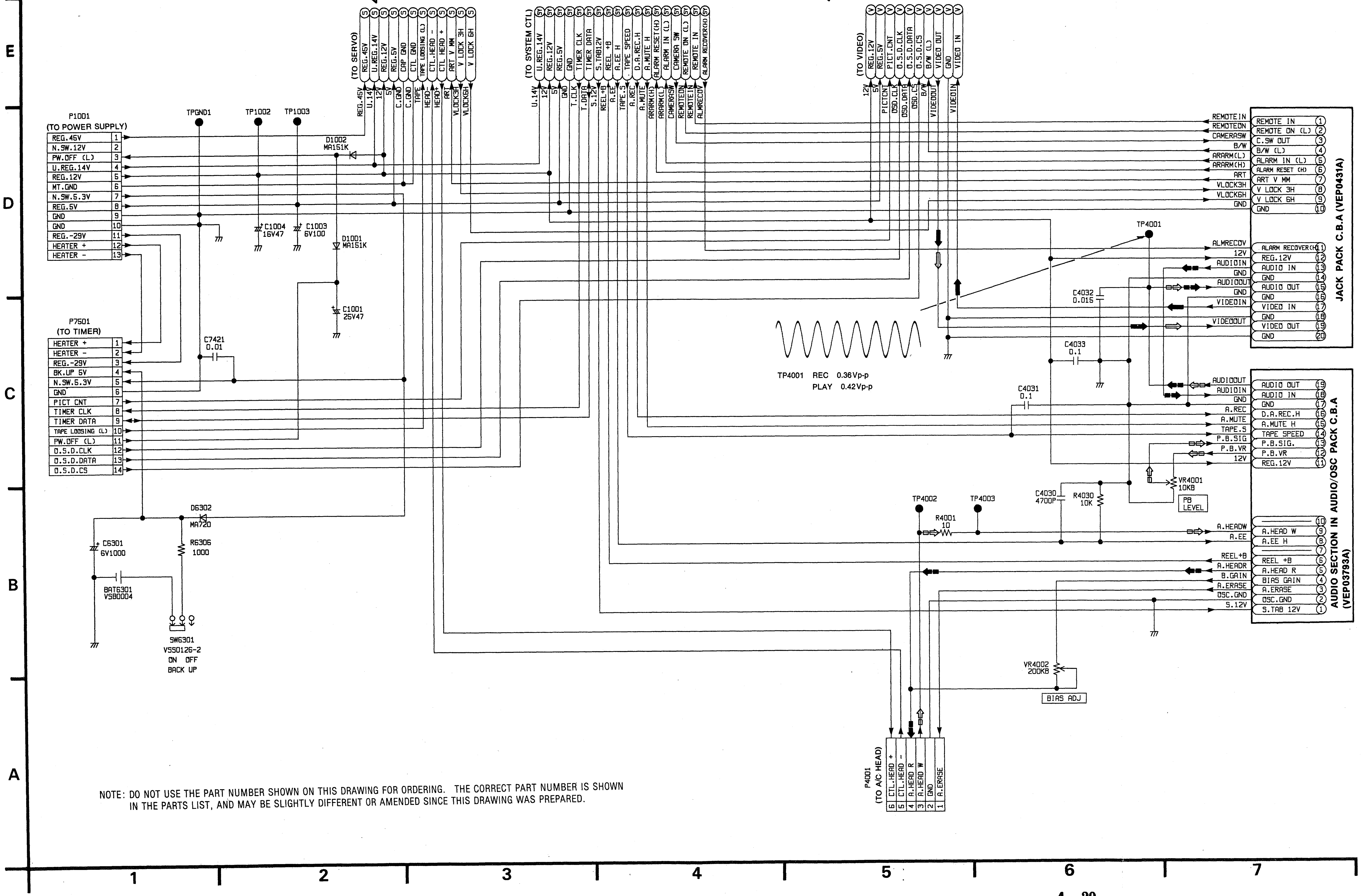
MOTHER SCHEMATIC DIAGRAM

◀■ AUDIO MAIN SIGNAL PATH IN REC MODE

◁□ AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

◀ VIDEO MAIN SIGNAL PATH IN REC MODE

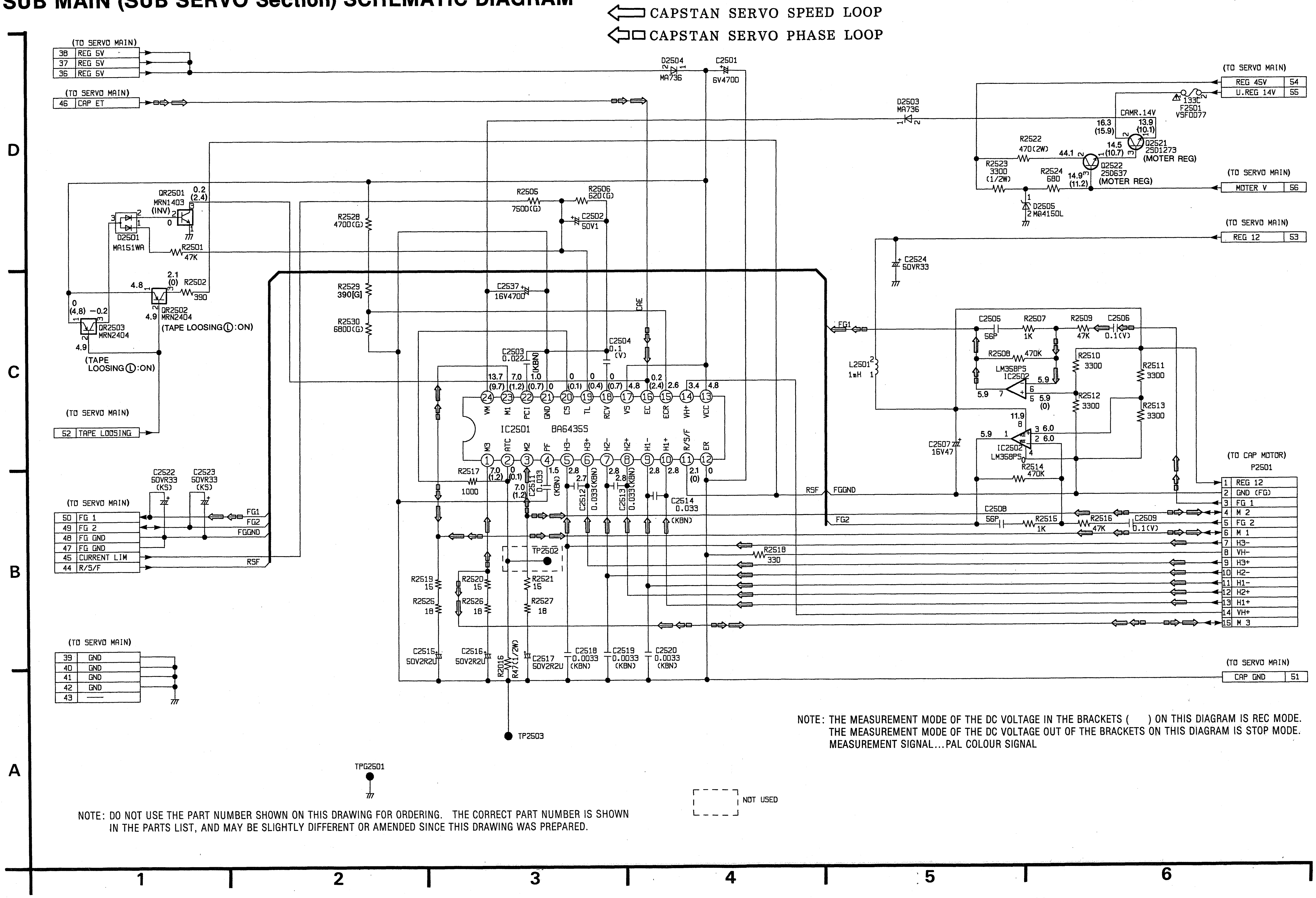
◁ VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE



E
D
C
B
A
1
2
3
4
5
6
7
(TO SERVO)
REG.45V
U.REG.14V
REG.12V
REG.5V
CAP GND
CTL GND
TAPE LOOSING (L)
CTL.HEAD -
CTL HEAD +
ART V MM
V LOCK 3H
V LOCK 6H
REG.45V
U.14V
12V
5V
C.GND
C.GND
TAPE
HEAD-
HEAD+
ART
VLOCK3H
VLOCK6H
(TO SYSTEM CTL)
U.REG.14V
REG.12V
REG.5V
GND
TIMER CLK
TIMER DATA
S.TAB12V
REEL +B
A.EE H
TAPE SPEED
D.A.REC.H
A.MUTE H
ALARM RESET(H)
ALARM IN (L)
CAMERA SW
REMOTE ON (L)
REMOTE IN
ALARM RECOVER(H)
U.14V
12V
5V
GND
T.CLK
T.DATA
S.12V
REEL+B
A.EE
TAPE.S
A.REC
A.MUTE
ARARM(H)
ARARM(L)
CAMERASW
REMOTEON
REMOTEIN
ALMRECOV
(TO VIDEO)
REG.12V
REG.5V
PICT.CNT
O.S.D.CLK
O.S.D.DATA
O.S.D.CS
B/W (L)
VIDEO OUT
GND
VIDEO IN
12V
5V
PICTCNT
OSD.CLK
OSD.DATA
OSD.CS
B/W
VIDEOOUT
VIDEOIN
P1001
(TO POWER SUPPLY)
REG.45V 1
N.SW.12V 2
PW.OFF (L) 3
U.REG.14V 4
REG.12V 5
MT.GND 6
N.SW.5.3V 7
REG.5V 8
GND 9
GND 10
REG.-29V 11
HEATER + 12
HEATER - 13
TPGND1
TP1002
TP1003
D1002
MA151K
C1004
16V47
C1003
6V100
D1001
MA151K
C1001
25V47
P7501
(TO TIMER)
HEATER + 1
HEATER - 2
REG.-29V 3
BK.UP 5V 4
N.SW.5.3V 5
GND 6
PICT CNT 7
TIMER CLK 8
TIMER DATA 9
TAPE LOOSING (L) 10
PW.OFF (L) 11
O.S.D.CLK 12
O.S.D.DATA 13
O.S.D.CS 14
C7421
0.01
D6302
MA720
C6301
6V1000
R6306
1000
BAT6301
VSB0004
SW6301
VSS0126-2
ON OFF
BACK UP
TP4001
TP4001 REC 0.36Vp-p
PLAY 0.42Vp-p
C4032
0.015
C4033
0.1
C4031
0.1
C4030
4700P
R4030
10K
VR4001
10KB
PB
LEVEL
TP4002
TP4003
R4001
10
VR4002
200KB
BIAS ADJ
P4001
(TO A/C HEAD)
6 CTL.HEAD +
5 CTL.HEAD -
4 A.HEAD R
3 A.HEAD W
2 GND
1 A.ERASE
REMOTEIN
REMOTEON
CAMERASW
B/W
ARARM(L)
ARARM(H)
ART
VLOCK3H
VLOCK6H
GND
ALMRECOV
12V
AUDIOIN
GND
AUDIOOUT
GND
VIDEOIN
VIDEOOUT
REMOTE IN 1
REMOTE ON (L) 2
C.SW OUT 3
B/W (L) 4
ALARM IN (L) 5
ALARM RESET (H) 6
ART V MM 7
V LOCK 3H 8
V LOCK 6H 9
GND 10
ALARM RECOVER(H) 11
REG.12V 12
AUDIO IN 13
GND 14
AUDIO OUT 15
GND 16
VIDEO IN 17
GND 18
VIDEO OUT 19
GND 20
JACK PACK C.B.A (VEP0431A)
AUDIOOUT
AUDIOIN
GND
A.REC
A.MUTE
TAPE.S
P.B.SIG
P.B.VR
12V
A.HEADW
A.EE
REEL+B
A.HEADR
B.GAIN
A.ERASE
OSC.GND
S.12V
AUDIO OUT 19
AUDIO IN 18
GND 17
D.A.REC.H 16
A.MUTE H 15
TAPE SPEED 14
P.B.SIG. 13
P.B.VR 12
REG.12V 11
10
A.HEAD W 9
A.EE H 8
7
REEL +B 6
A.HEAD R 5
BIAS GAIN 4
A.ERASE 3
OSC.GND 2
S.TAB 12V 1
AUDIO SECTION IN AUDIO/OSC PACK C.B.A
(VEP03793A)

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

SUB MAIN (SUB SERVO Section) SCHEMATIC DIAGRAM



⇦ CAPSTAN SERVO SPEED LOOP
⇦ CAPSTAN SERVO PHASE LOOP
(TO SERVO MAIN)
38 REG 5V
37 REG 5V
36 REG 5V
46 CAP ET
D2504 MA736
C2501 6V4700
D2503 MA736
(TO SERVO MAIN)
REG 45V 54
U.REG 14V 55
133C F2501 VSF0077
CAMR.14V
Q2521 2SD1273 (MOTER REG)
Q2522 2SD637 (MOTER REG)
R2522 470(2W)
R2523 3300 (1/2W)
R2524 680
D2505 MA4150L
MOTER V 56
REG 12 53
C2524 50VR33
QR2501 MRN1403 (INV)
D2501 MA151WA
R2501 47K
R2502 390
QR2502 MRN2404 (TAPE LOOSING(L):ON)
QR2503 MRN2404
(TAPE LOOSING(L):ON)
52 TAPE LOOSING
R2505 7500(G)
R2506 620(G)
C2502 50V1
R2528 4700(G)
R2529 390(G)
R2530 6800(G)
C2537 16V4700
C2503 0.022
C2504 0.1
IC2501 BA6435S
VM M1 PC1 GND CS TL RCV VS EC ECR VH+ VCC
M3 ATC M2 PF H3- H3+ H2- H2+ H1- H1+ R/S/F ER
R2517 1000
C2511 0.033
C2512 0.033(KBN)
C2513 0.033(KBN)
C2514 0.033 (KBN)
TP2502
R2518 330
R2519 15
R2520 15
R2521 15
R2525 18
R2526 18
R2527 18
C2515 50V2R2U
C2516 50V2R2U
R2016 R47(1/2W)
C2517 50V2R2U
C2518 0.0033 (KBN)
C2519 0.0033 (KBN)
C2520 0.0033 (KBN)
TP2503
C2522 50VR33 (KS)
C2523 50VR33 (KS)
(TO SERVO MAIN)
50 FG 1
49 FG 2
48 FG GND
47 FG GND
45 CURRENT LIM
44 R/S/F
FG1 FG2 FGGND RSF
(TO SERVO MAIN)
39 GND
40 GND
41 GND
42 GND
43 ——
L2501 1mH
C2505 56P
R2507 1K
R2509 47K
C2506 0.1(V)
R2508 470K
LM358PS IC2502
R2510 3300
R2511 3300
R2512 3300
R2513 3300
C2507 16V47
R2514 470K
C2508 56P
R2515 1K
R2516 47K
C2509 0.1(V)
(TO CAP MOTOR) P2501
1 REG 12
2 GND (FG)
3 FG 1
4 M 2
5 FG 2
6 M 1
7 H3-
8 VH-
9 H3+
10 H2-
11 H1-
12 H2+
13 H1+
14 VH+
15 M 3
(TO SERVO MAIN)
CAP GND 51
TPG2501
NOT USED
D C B A
1 2 3 4 5 6

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS REC MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE.
MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

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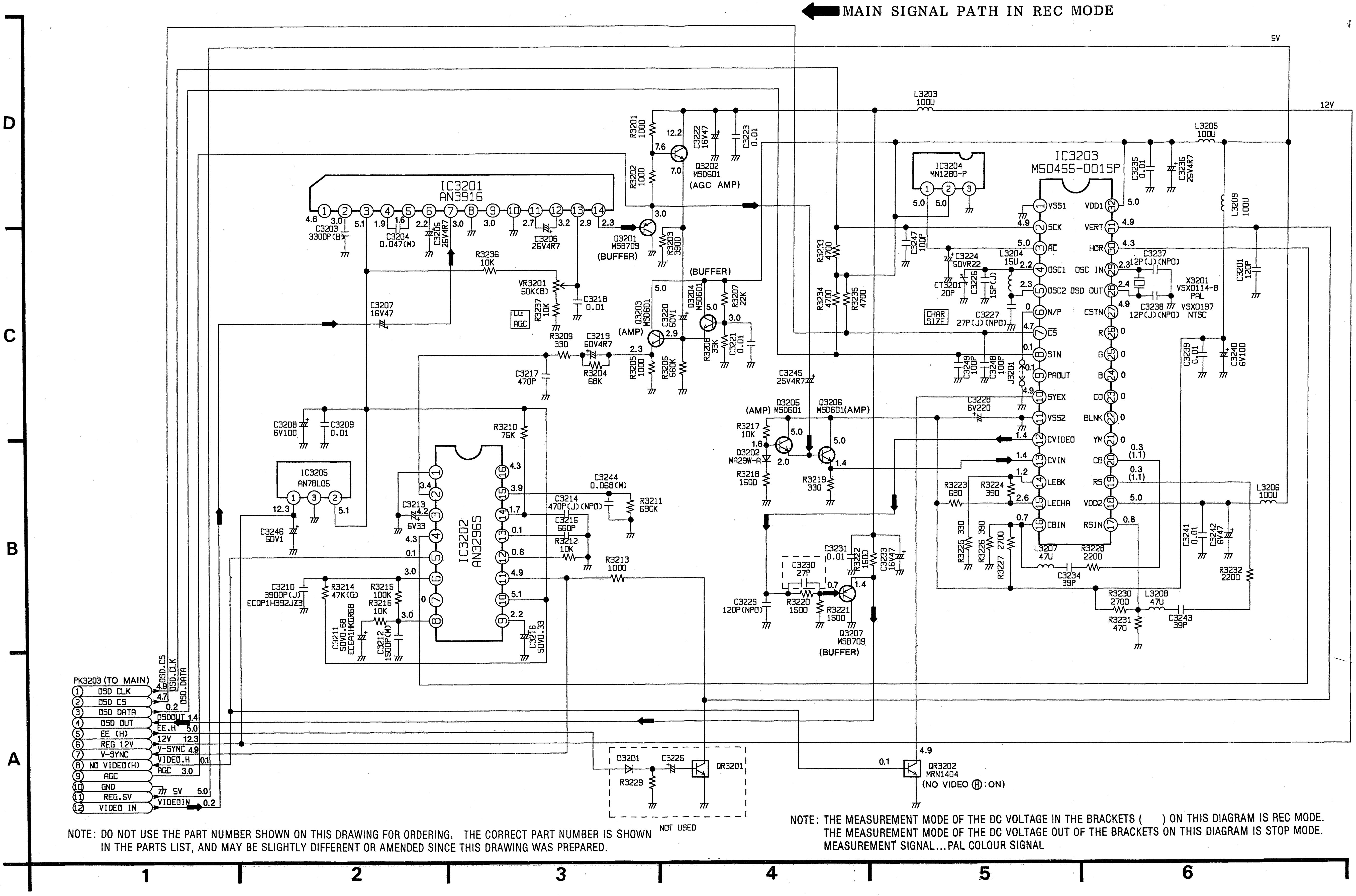
OSD SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
IC3201 AN3916
IC3202 AN3296S
IC3203 M50455-001SP
IC3204 MN1280-P
IC3205 AN78L05
Q3201 MSB709 (BUFFER)
Q3202 MSD601 (AGC AMP)
Q3203 MSD601 (AMP)
Q3204 MSD601 (BUFFER)
Q3205 MSD601 (AMP)
Q3206 MSD601 (AMP)
Q3207 MSB709 (BUFFER)
QR3201
QR3202 MRN1404 (NO VIDEO (H):ON)
D3201
D3202 MA29W-A
X3201 VSX0114-B PAL VSX0197 NTSC
VR3201 50K(B)
AGC
CHAR SIZE
NOT USED
PK3203 (TO MAIN)
① OSD CLK
② OSD CS
③ OSD DATA
④ OSD OUT
⑤ EE (H)
⑥ REG 12V
⑦ V-SYNC
⑧ NO VIDEO(H)
⑨ AGC
⑩ GND
⑪ REG.5V
⑫ VIDEO IN
VSS1
SCK
AC
OSC1
OSC2
N/P
CS
SIN
PAOUT
SYEX
VSS2
CVIDEO
CVIN
LEBK
LECHA
CBIN
VDD1
VERT
HOR
OSC IN
OSC OUT
CSTN
R
G
B
CO
BLNK
YM
CB
RS
VDD2
RSIN
5V
12V
1
2
3
4
5
6
A
B
C
D

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

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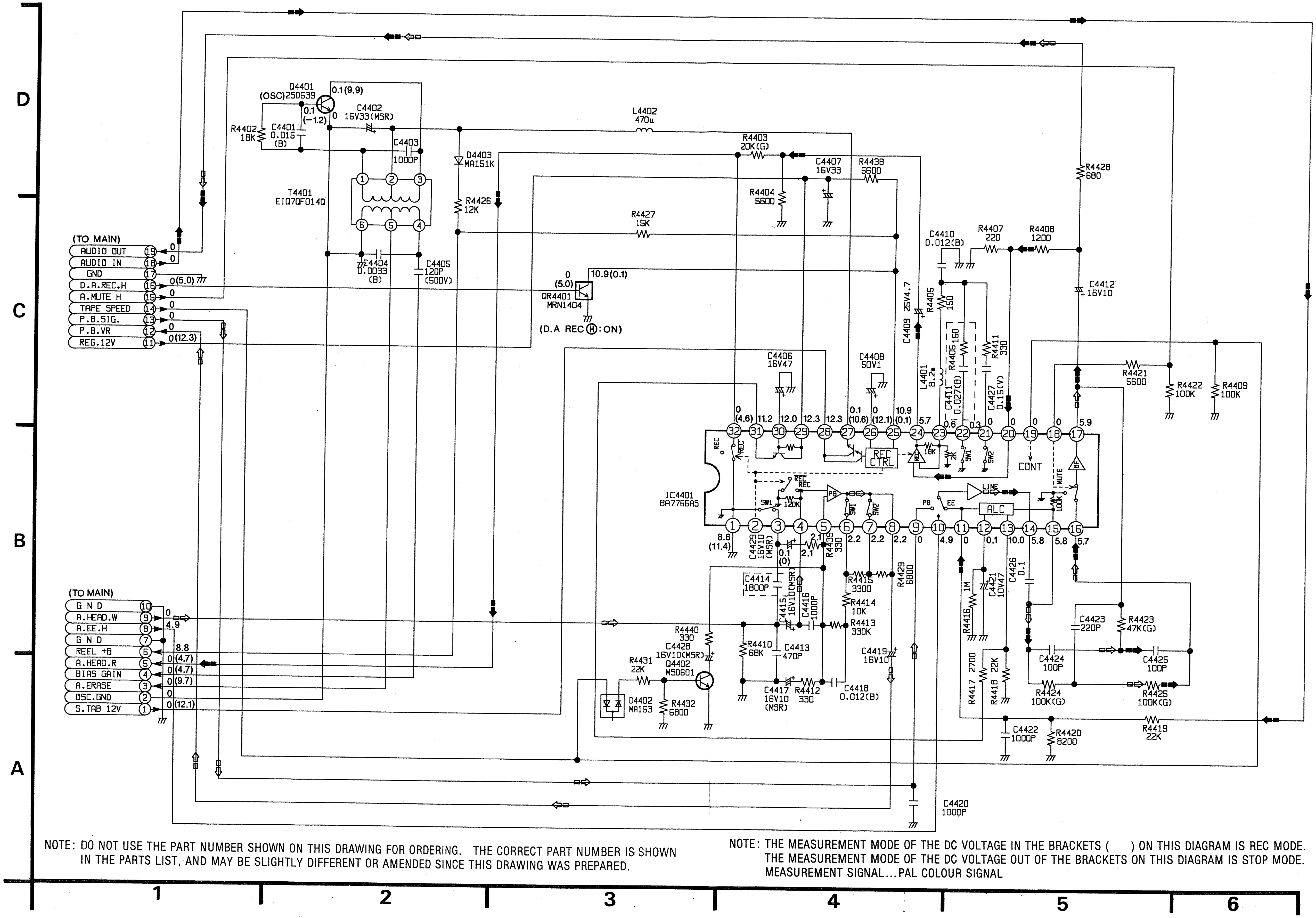
MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

AUDIO SCHEMATIC DIAGRAM

◀■ MAIN SIGNAL PATH IN REC MODE ◁□ MAIN SIGNAL PATH IN PLAYBACK MODE


D
C
B
A
1
2
3
4
5
6
(TO MAIN)
AUDIO OUT ⑲
AUDIO IN ⑱
GND ⑰
D.A.REC.H ⑯
A.MUTE H ⑮
TAPE SPEED ⑭
P.B.SIG. ⑬
P.B.VR ⑫
REG.12V ⑪
0(5.0)
0(12.3)
(TO MAIN)
GND ⑩
A.HEAD.W ⑨
A.EE.H ⑧
GND ⑦
REEL +B ⑥
A.HEAD.R ⑤
BIAS GAIN ④
A.ERASE ③
OSC.GND ②
S.TAB 12V ①
4.9
8.8
0(4.7)
0(4.7)
0(9.7)
0(12.1)
Q4401
(OSC)2SD639
0.1(9.9)
0.1
(-1.2)
C4402
16V33(MSR)
R4402
18K
C4401
0.015
(B)
C4403
1000P
T4401
EIQ7QF014Q
C4404
0.0033
(B)
C4405
120P
(500V)
D4403
MA151K
R4426
12K
L4402
470u
R4403
20K(G)
R4404
5600
C4407
16V33
R4438
5600
R4427
15K
QR4401
MRN1404
10.9(0.1)
(5.0)
(D.A REC Ⓗ:ON)
C4406
16V47
C4408
50V1
C4409 25V4.7
R4405 150
L4401 8.2m
R4406 150
C4411 0.027(B)
C4427 0.15(V)
R4411 330
C4410
0.012(B)
R4407
220
R4408
1200
R4428
680
C4412
16V10
R4421
5600
R4422
100K
R4409
100K
IC4401
BA7766AS
REC CTRL
CONT
MUTE
LINE
ALC
PB
EE
SW1
SW2
120K
18K
8.6
(11.4)
C4428
16V10
(MSR)
C4414
1800P
C4415
16V10(MSR)
C4416
1000P
R4439
330
R4415
3300
R4414
10K
R4413
330K
R4410
68K
C4413
470P
C4417
16V10
(MSR)
R4412
330
C4418
0.012(B)
C4419
16V10
R4429
6800
R4440
330
C4428
16V10(MSR)
Q4402
MSD601
R4431
22K
D4402
MA153
R4432
6800
R4416
1M
C4421
10V47
C4426
0.1
R4417 2700
R4418 22K
C4423
220P
R4423
47K(G)
C4424
100P
C4425
100P
R4424
100K(G)
R4425
100K(G)
C4422
1000P
R4420
8200
R4419
22K
C4420
1000P

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NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS REC MODE.
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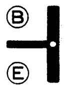
MEASUREMENT SIGNAL... PAL COLOUR SIGNAL

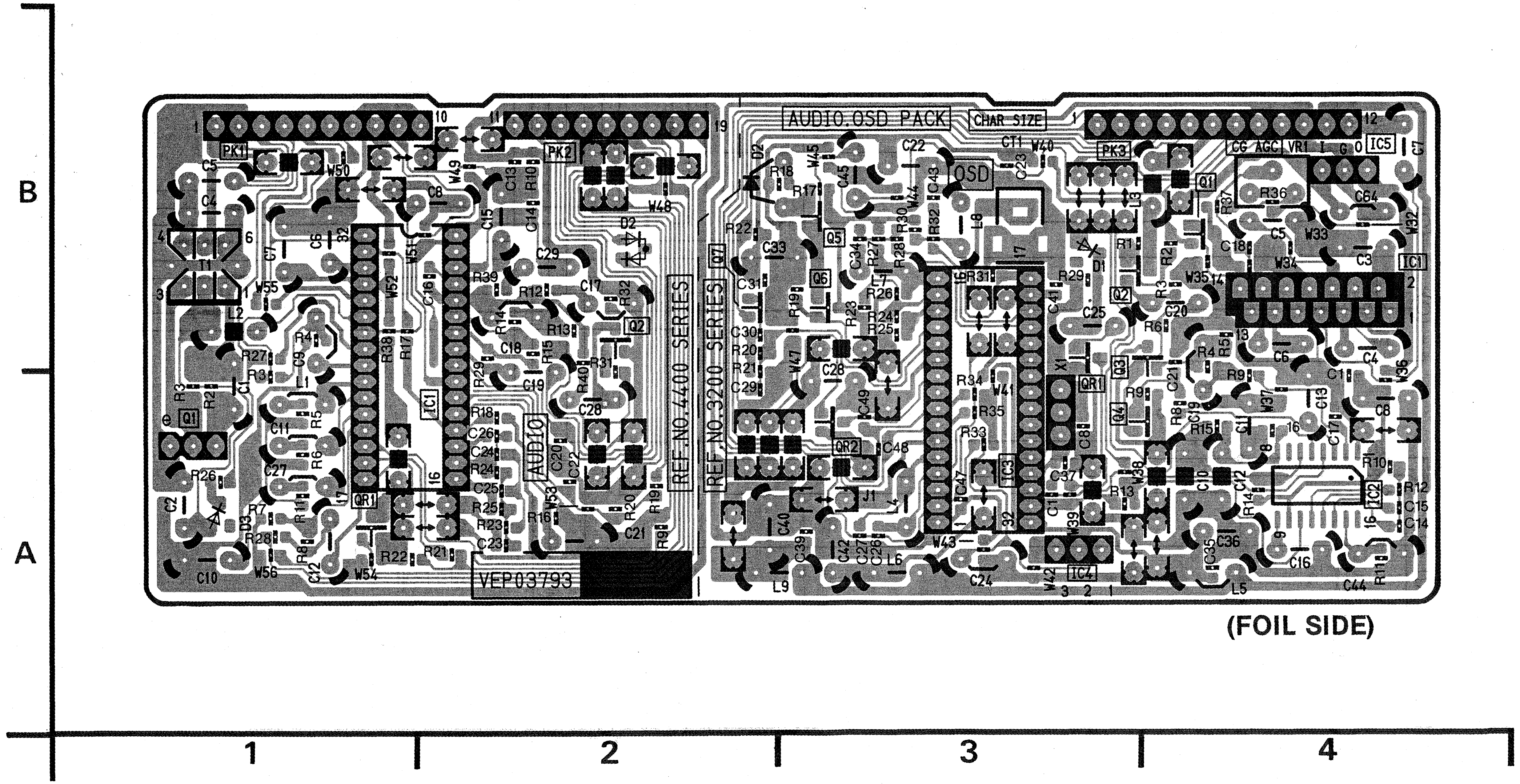
AUDIO/OSD PACK C.B.A. (VEP03793A)

TRANSISTOR INFORMATION



AUDIO/OSD PACK C.B.A.			
Transistor		**Integrated Circuit**	
Q3201	B-4	IC3201	B-4
Q3202	B-3	IC3202	A-4
Q3203	B-3	IC3203	A-3
Q3204	A-3	IC3204	A-3
Q3205	B-3	IC3205	B-4
Q3206	B-3	IC4401	A-2
Q3207	B-2		
Q4401	A-1		
Transistor & Resistor			
QR3202	A-3		
QR4401	A-1		

ADDRESS INFORMATION


B
A
1
2
3
4
AUDIO OSD PACK
CHAR SIZE
OSD
AUDIO
REF.NO.4400 SERIES
REF.NO.3200 SERIES
VEP03793
PK1
PK2
PK3
IC1
IC2
IC3
IC4
IC5
QR1
QR2
Q1
Q2
Q3
Q4
Q5
Q6
Q7
CG AGC VR1 I G O

(FOIL SIDE)

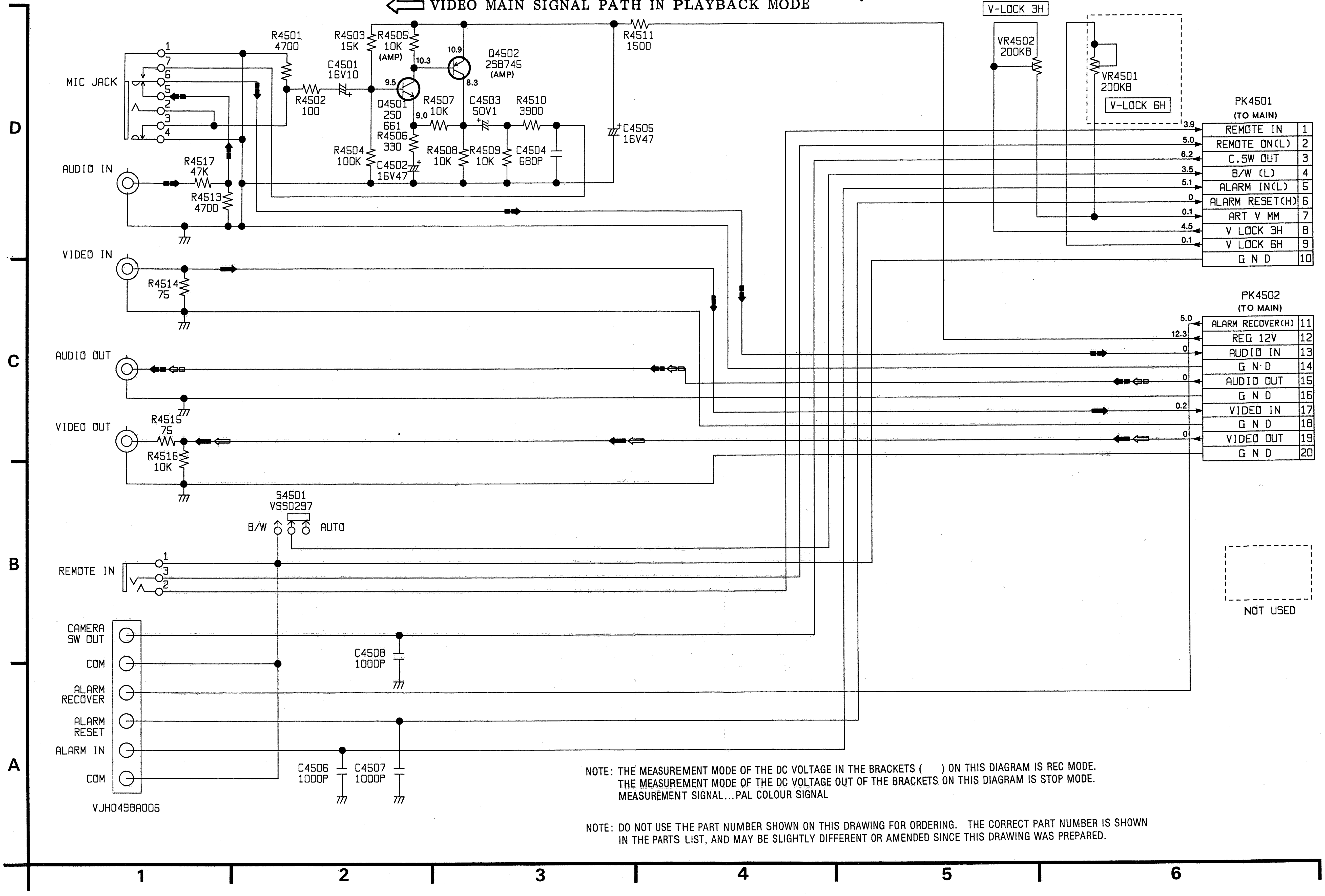
JACK PACK SCHEMATIC DIAGRAM

◀ VIDEO MAIN SIGNAL PATH IN REC MODE

◁ VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE

◀■ AUDIO MAIN SIGNAL PATH IN REC MODE

◁□ AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE


D
C
B
A
1
2
3
4
5
6
MIC JACK
AUDIO IN
VIDEO IN
AUDIO OUT
VIDEO OUT
REMOTE IN
CAMERA SW OUT
COM
ALARM RECOVER
ALARM RESET
ALARM IN
COM
VJH0498A006
R4501 4700
R4502 100
R4503 15K
R4505 10K (AMP)
C4501 16V10
Q4501 2SD 661
Q4502 2SB745 (AMP)
R4506 330
R4504 100K
C4502 16V47
R4507 10K
C4503 50V1
R4510 3900
R4508 10K
R4509 10K
C4504 680P
R4511 1500
C4505 16V47
R4517 47K
R4513 4700
R4514 75
R4515 75
R4516 10K
S4501 VSS0297
B/W
AUTO
C4508 1000P
C4506 1000P
C4507 1000P
10.3
10.9
9.5
8.3
9.0
V-LOCK 3H
VR4502 200KB
VR4501 200KB
V-LOCK 6H
PK4501 (TO MAIN)
3.9 REMOTE IN 1
5.0 REMOTE ON(L) 2
6.2 C.SW OUT 3
3.5 B/W (L) 4
5.1 ALARM IN(L) 5
0 ALARM RESET(H) 6
0.1 ART V MM 7
4.5 V LOCK 3H 8
0.1 V LOCK 6H 9
G N D 10
PK4502 (TO MAIN)
5.0 ALARM RECOVER(H) 11
12.3 REG 12V 12
0 AUDIO IN 13
G N D 14
0 AUDIO OUT 15
G N D 16
0.2 VIDEO IN 17
G N D 18
0 VIDEO OUT 19
G N D 20
NOT USED

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS REC MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE.
MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

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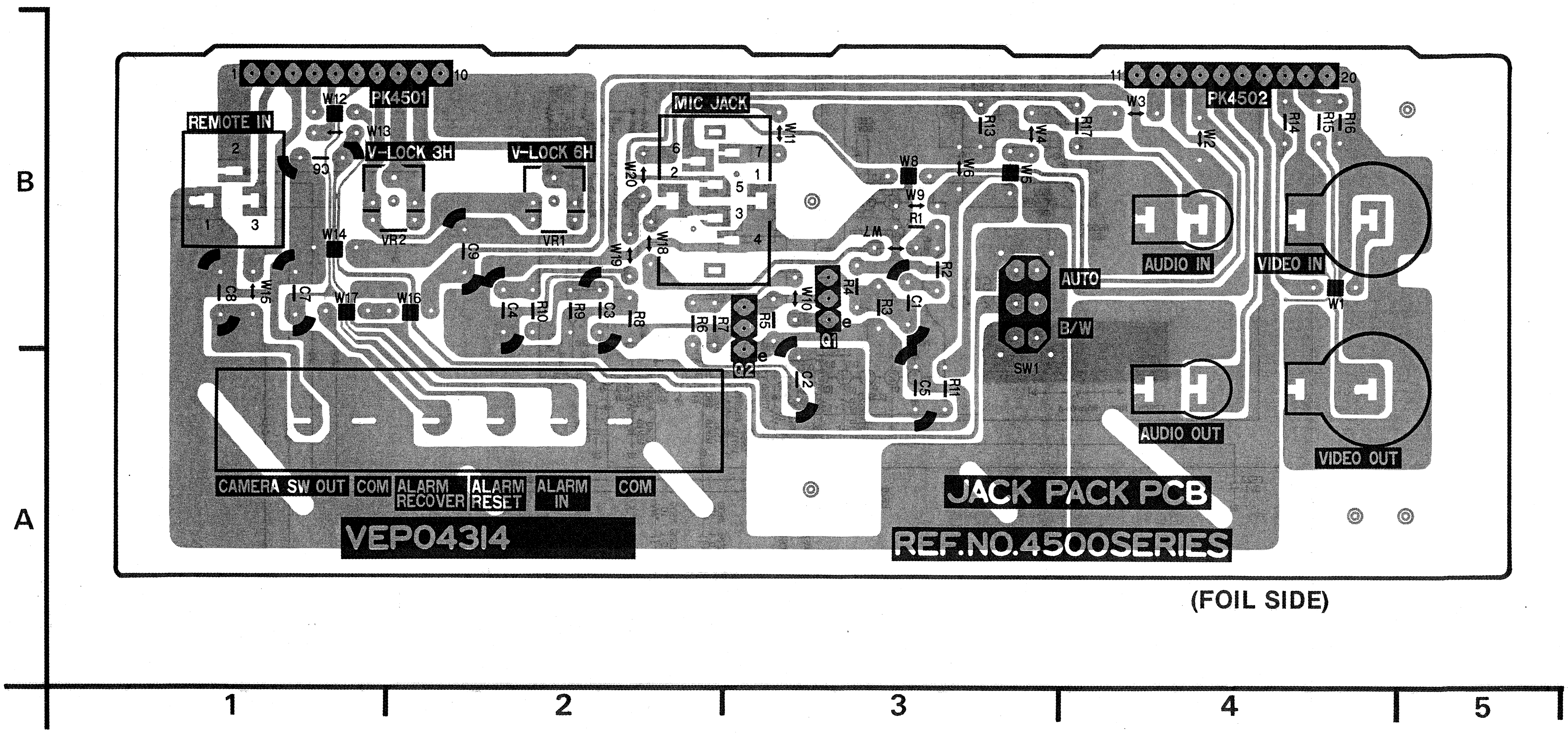
JACK PACK C.B.A. (VEP04314A)

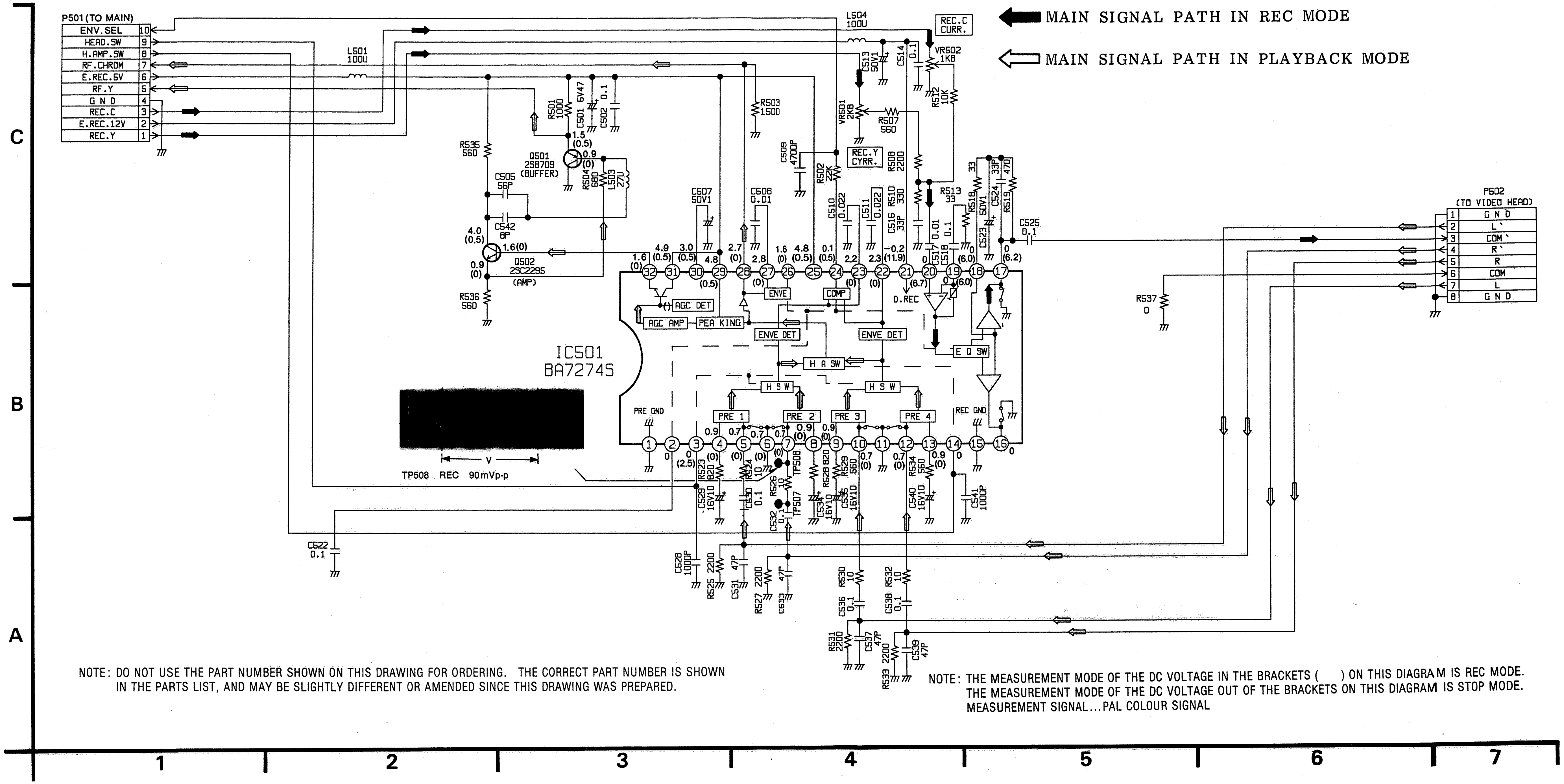
JACK PACK C.B.A.	
Transistor	
Q4501 Q4502	B-3 B-3
Adjustment	
VR4502	B-1

ADDRESS INFORMATION


B
A
1
2
3
4
5
PK4501
1
10
REMOTE IN
2
1
3
W12
W13
93
V-LOCK 3H
V-LOCK 6H
VR2
VR1
W14
W15
W16
W17
C8
C7
C9
C4
R10
R9
C3
R8
MIC JACK
W11
W20
W19
W18
6
7
2
1
5
3
4
R6
R7
R5
Q2
e
Q1
e
W10
R4
C2
W8
W9
R1
W7
R2
R3
C1
C5
R11
R13
W4
W6
W5
R17
W3
11
20
PK4502
W2
R14
R15
R16
AUTO
B/W
SW1
AUDIO IN
VIDEO IN
W1
AUDIO OUT
VIDEO OUT
CAMERA SW OUT
COM
ALARM RECOVER
ALARM RESET
ALARM IN
COM
VEP04314
JACK PACK PCB
REF.NO.4500SERIES

(FOIL SIDE)

HEAD AMP SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
P501 (TO MAIN)
ENV.SEL 10
HEAD.SW 9
H.AMP.SW 8
RF.CHROM 7
E.REC.5V 6
RF.Y 5
G N D 4
REC.C 3
E.REC.12V 2
REC.Y 1
L501 100U
L504 100U
REC.C CURR.
VR502 1K8
R512 10K
VR501 2K8
R507 560
REC.Y CYRR.
R501 1000
C501 6V47
C502 0.1
R503 1500
R535 560
Q501 2SB709 (BUFFER)
R504 680
L503 27U
C505 56P
C542 8P
Q502 2SC2295 (AMP)
R536 560
C507 50V1
C508 0.01
C509 4700P
R502 22K
C510 0.022
C511 0.022
R510 330
C516 33P
R508 2200
R513 33
C513 50V1
C514 0.1
C517 0.01
C518 0.1
R518
C523 50V1
C524 33P
R519 470
C525 0.1
P502 (TO VIDEO HEAD)
1 G N D
2 L`
3 COM`
4 R`
5 R
6 COM
7 L
8 G N D
R537 0
IC501 BA7274S
AGC DET
AGC AMP
PEA KING
ENVE
COMP
ENVE DET
D.REC
E Q SW
H A SW
H S W
PRE 1
PRE 2
PRE 3
PRE 4
PRE GND
REC GND
TP508 REC 90mVp-p
V
C522 0.1
R523 820
C529 16V10
R524 10
C530 0.1
R526 10
C532 0.1
TP507
R528 820
C534 16V10
R529 560
C535 16V10
R534 560
C540 16V10
C541 1000P
C528 1000P
R525 2200
C531 47P
R527 2200
C533 47P
R530 10
R532 10
C536 0.1
C538 0.1
R531 2200
C537 47P
R533 2200
C539 47P
A
B
C
1
2
3
4
5
6
7

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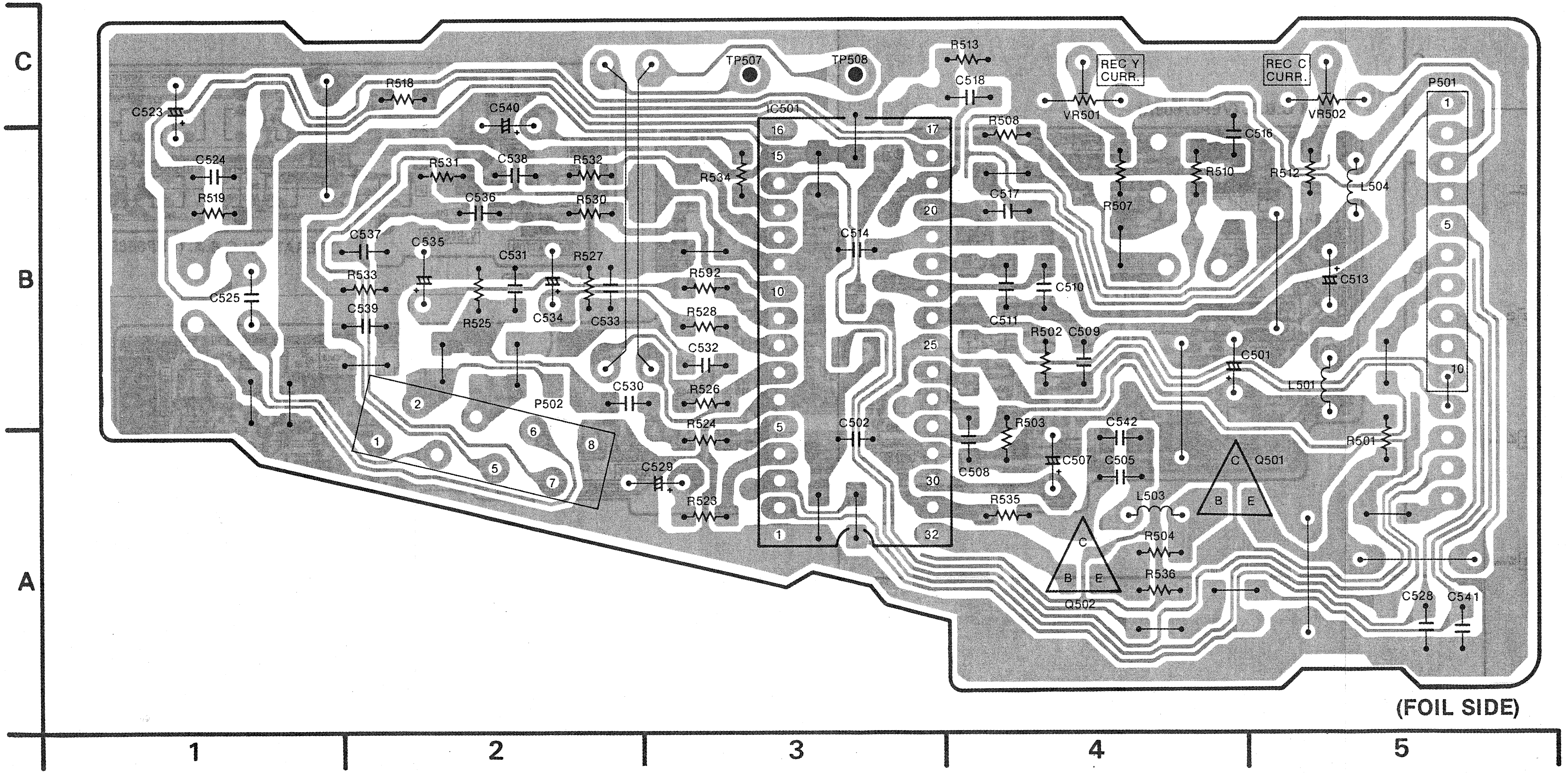
MEASUREMENT SIGNAL...PAL COLOUR SIGNAL

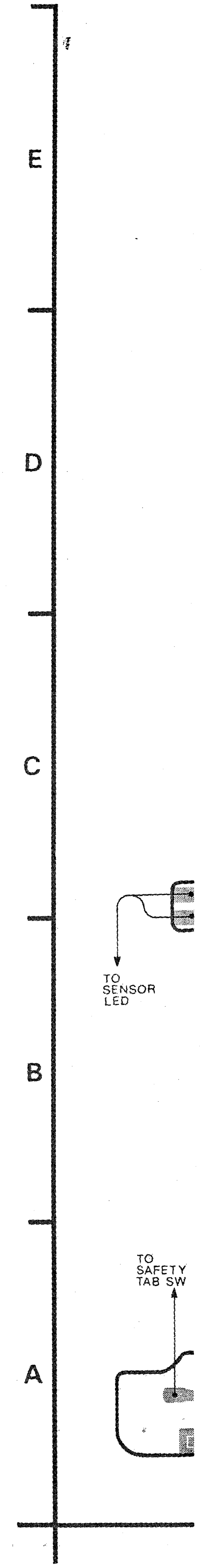
HEAD AMP C.B.A. (VEP05137H)

HEAD AMP C.B.A.	
Transistor	
Q501 Q502	A-4 A-4
Integrated Circuit	
IC501	B-3
Test Point	
TP507 TP508	C-3 C-3
Adjustment	
VR501 VR502	C-4 C-5
Connector	
P501 P502	B-5 A-2

ADDRESS INFORMATION

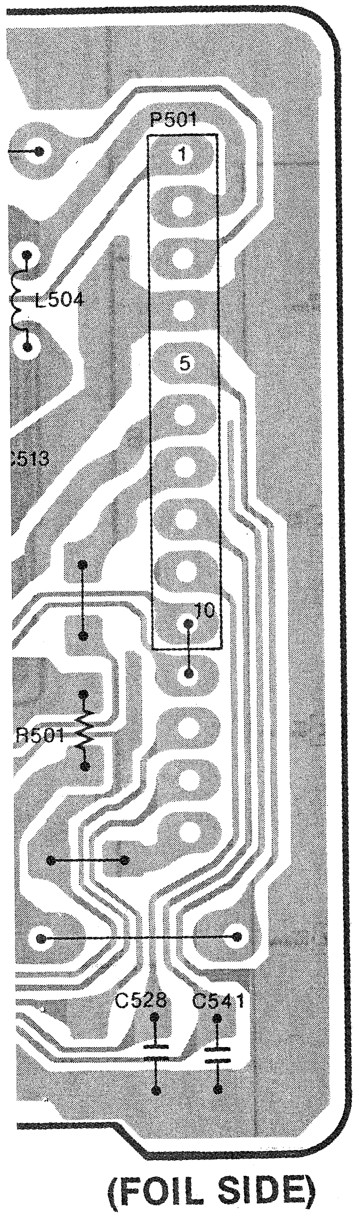

C
B
A
1
2
3
4
5
C523
R518
C540
R531
C538
R532
R534
C524
R519
C536
R530
C537
C535
C531
R527
R533
R592
C525
R525
C534
C533
R528
C539
C532
R526
C530
P502
R524
C529
R523
TP507
TP508
IC501
16
15
17
20
10
25
5
30
1
32
C514
C502
R513
C518
R508
C517
C511
C510
R502
C509
C508
R503
C507
C542
C505
R535
L503
R504
R536
Q502
C
B
E
Q501
C
B
E
REC Y CURR.
VR501
C516
R510
R507
REC C CURR.
VR502
R512
L504
C513
C501
L501
R501
P501
1
5
10
C528
C541
(FOIL SIDE)

MAIN [SY


E
D
C
B
A
TO SENSOR LED
TO SAFETY TAB SW

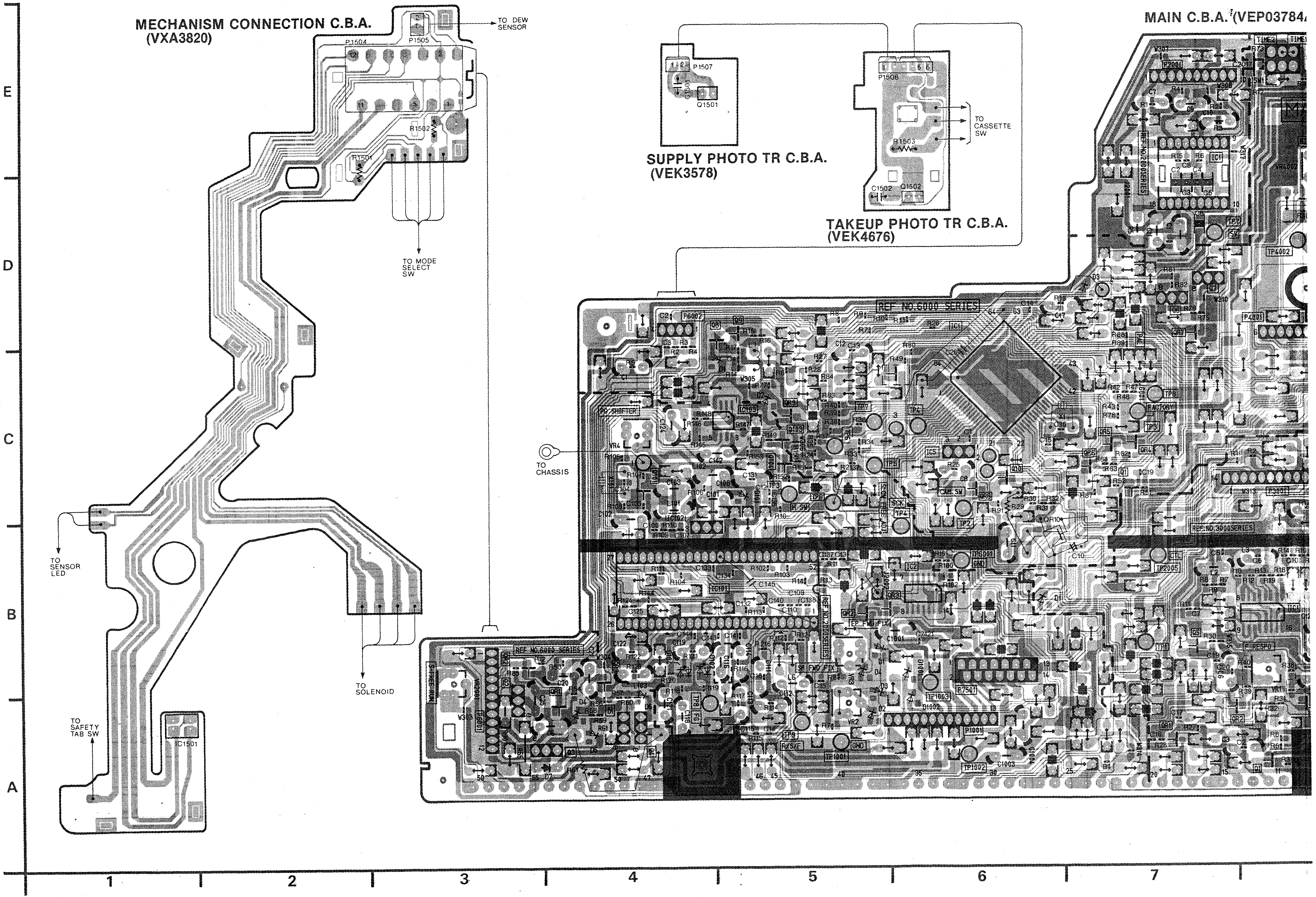
HEAD AMP C.B.A.	
Transistor	
Q501 Q502	A-4 A-4
Integrated Circuit	
IC501	B-3
Test Point	
TP507 TP508	C-3 C-3
Adjustment	
VR501 VR502	C-4 C-5
Connector	
P501 P502	B-5 A-2

ADDRESS INFORMATION

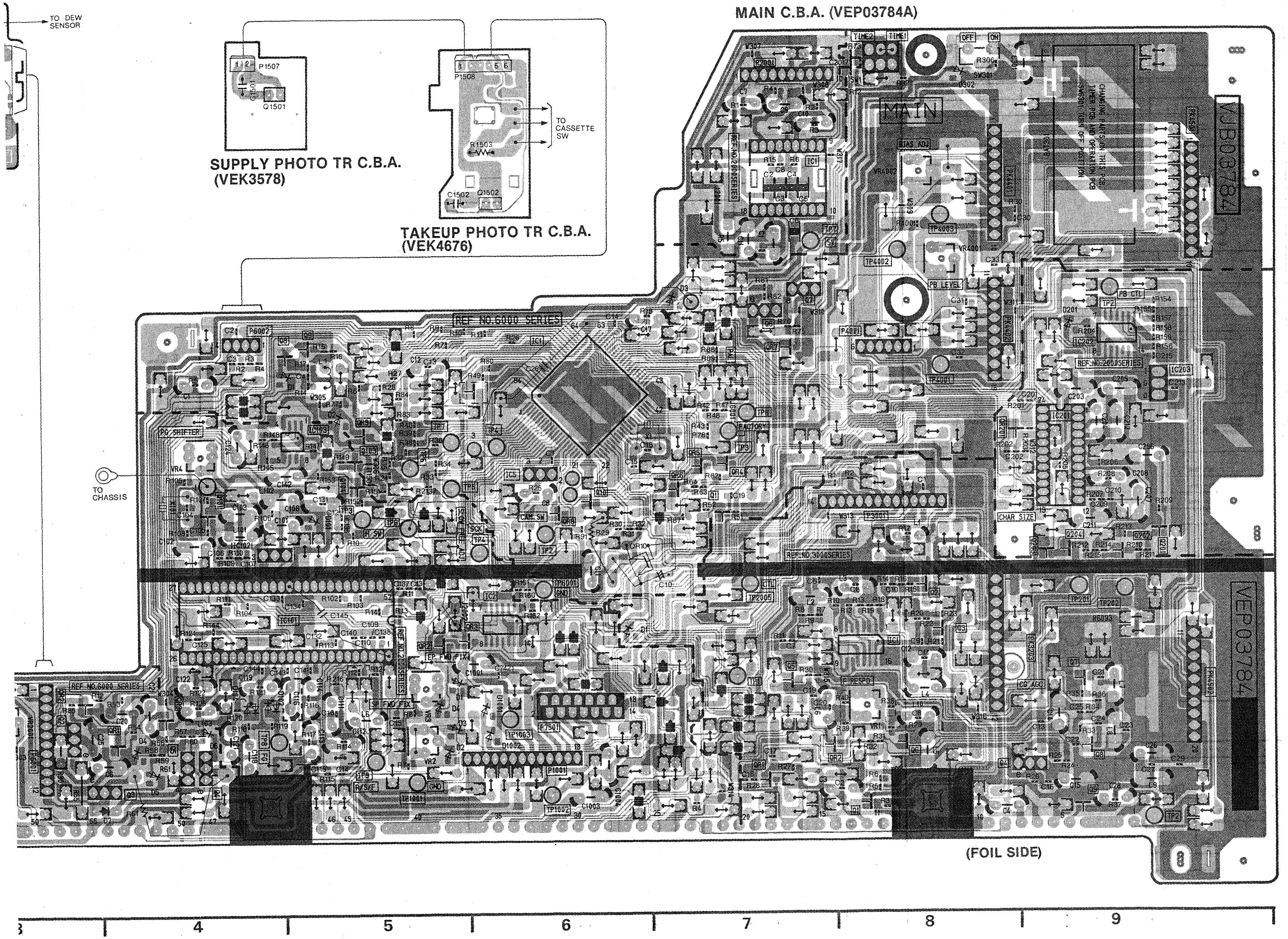

P501
1
5
10
L504
:513
R501
C528
C541
5

(FOIL SIDE)

MAIN [SYSTEM CONTROL, SERVO, VIDEO, MOTHER Section] C.B.A. (VEP03784A)


MECHANISM CONNECTION C.B.A.
(VXA3820)
P1504
P1505
TO DEW SENSOR
R1502
R1501
TO MODE SELECT SW
TO SENSOR LED
TO SOLENOID
TO SAFETY TAB SW
IC1501
TO CHASSIS
SUPPLY PHOTO TR C.B.A.
(VEK3578)
P1507
Q1501
C1501
TAKEUP PHOTO TR C.B.A.
(VEK4676)
P1508
R1503
C1502
Q1502
TO CASSETTE SW
MAIN C.B.A. (VEP03784
REF. NO.6000 SERIES
REF. NO.2000 SERIES
REF. NO.3000 SERIES
IC1
IC5
IC101
IC2
P6002
P6001
P7501
P1001
P2001
P4001
P3001
TP1001
TP1002
TP6001
TP2005
TP4002
CAM SW
REC SAFETY
FACTORY
E
D
C
B
A
1
2
3
4
5
6
7

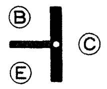
OTHER Section] C.B.A. (VEP03784A)


TO DEW SENSOR
P1507
Q1501
SUPPLY PHOTO TR C.B.A.
(VEK3578)
P1508
TO CASSETTE SW
R1503
C1502
Q1502
TAKEUP PHOTO TR C.B.A.
(VEK4676)
MAIN C.B.A. (VEP03784A)
MAIN
VJB03784
VEP03784
TO CHASSIS
REF.NO.6000 SERIES
REF.NO.2000SERIES
REF.NO.3000SERIES
PG SHIFTER
BIAS ADJ
PB LEVEL
CHAR SIZE
FACTORY
CAM SW
SP FM0 FIX
EP FM0 FIX
F.RESPO
CG AGC
TIME1
TIME2
OFF
ON
(FOIL SIDE)
4
5
6
7
8
9

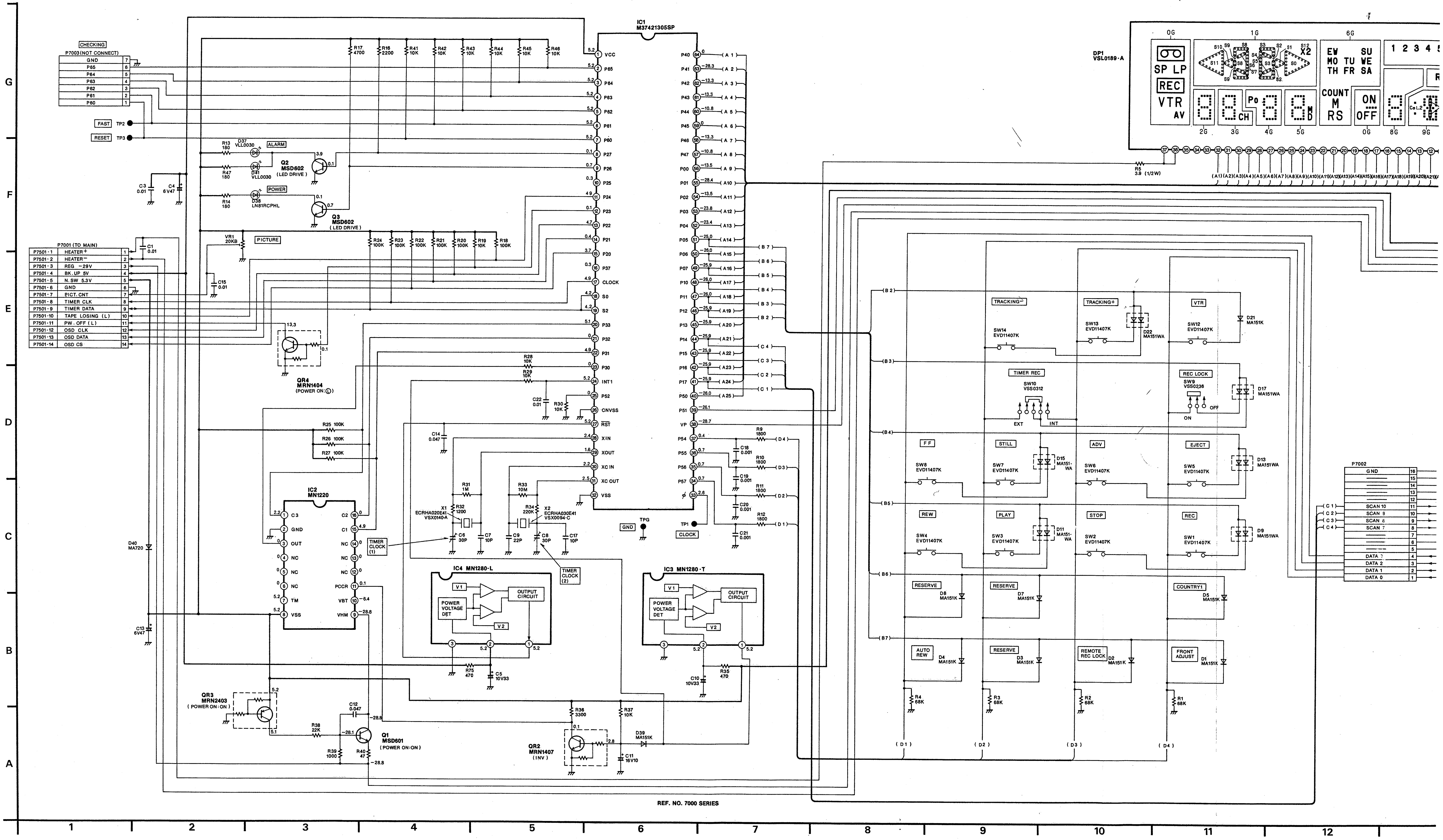
MAIN C.B.A.	
Transistor	
Q1501	E-4
Q1502	D-6
Q2101	C-4
Q2103	C-5
Q2104	C-5
Q2201	B-9
Q2202	B-9
Q2203	B-9
Q2204	B-9
Q3001	A-8
Q3002	B-8
Q3003	B-8
Q3004	A-9
Q3005	B-7
Q3006	A-8
Q3007	B-9
Q3008	A-9
Q3009	A-9
Q6001	C-7
Q6002	A-3
Q6003	A-4
Q6004	A-4
Q6005	A-4
Q6006	D-7
Q6007	D-7
Q6008	D-4
Q6009	D-5
Transistor & Resistor	
QR2002	B-5
QR2003	B-5
QR2201	C-9
QR3001	A-7
QR6001	A-4
QR6002	B-3
QR6003	B-4
QR6004	C-7
QR6005	C-7
QR6006	C-7
QR6007	D-7
QR6008	C-6
QR6009	C-5
QR6010	C-6
Integrated Circuit	
IC1501	A-1
IC2001	E-7
IC2002	B-6
IC2101	B-4
IC2102	B-4
IC2103	C-5
IC2201	C-9
IC2202	D-9
IC2203	C-9
IC3001	B-8
IC6001	C-6
IC6005	C-6
Test Point	
TP1001	A-5
TP1002	A-6
TP1003	B-6
TP2002	D-9
TP2003	C-5
TP2004	B-6
TP2005	B-7
TP2006	C-5
TP2007	D-7
TP2008	A-4
TP2009	A-5
TP3001	B-7
TP3002	A-9
TP3201	B-9
TP3202	B-9
TP4001	C-8
TP4002	D-8
TP4003	D-8
TP6001	B-6
TP6002	C-6
TP6003	C-7
TP6004	C-6
TP6005	C-5
TP6006	C-5
TP6007	C-5
TP6008	C-7
Adjustment	
VR2004	C-4
VR3001	B-8
VR4001	D-8
VR4002	E-8
Connector	
P1001	A-6
P1501	E-4
P1504	E-2
P1505	E-3
P1507	E-4
P1508	E-5
P2001	E-7
P3001	C-8
P4001	D-8
P6001	A-3
P6002	D-4
P7501	B-6

ADDRESS INFORMATION

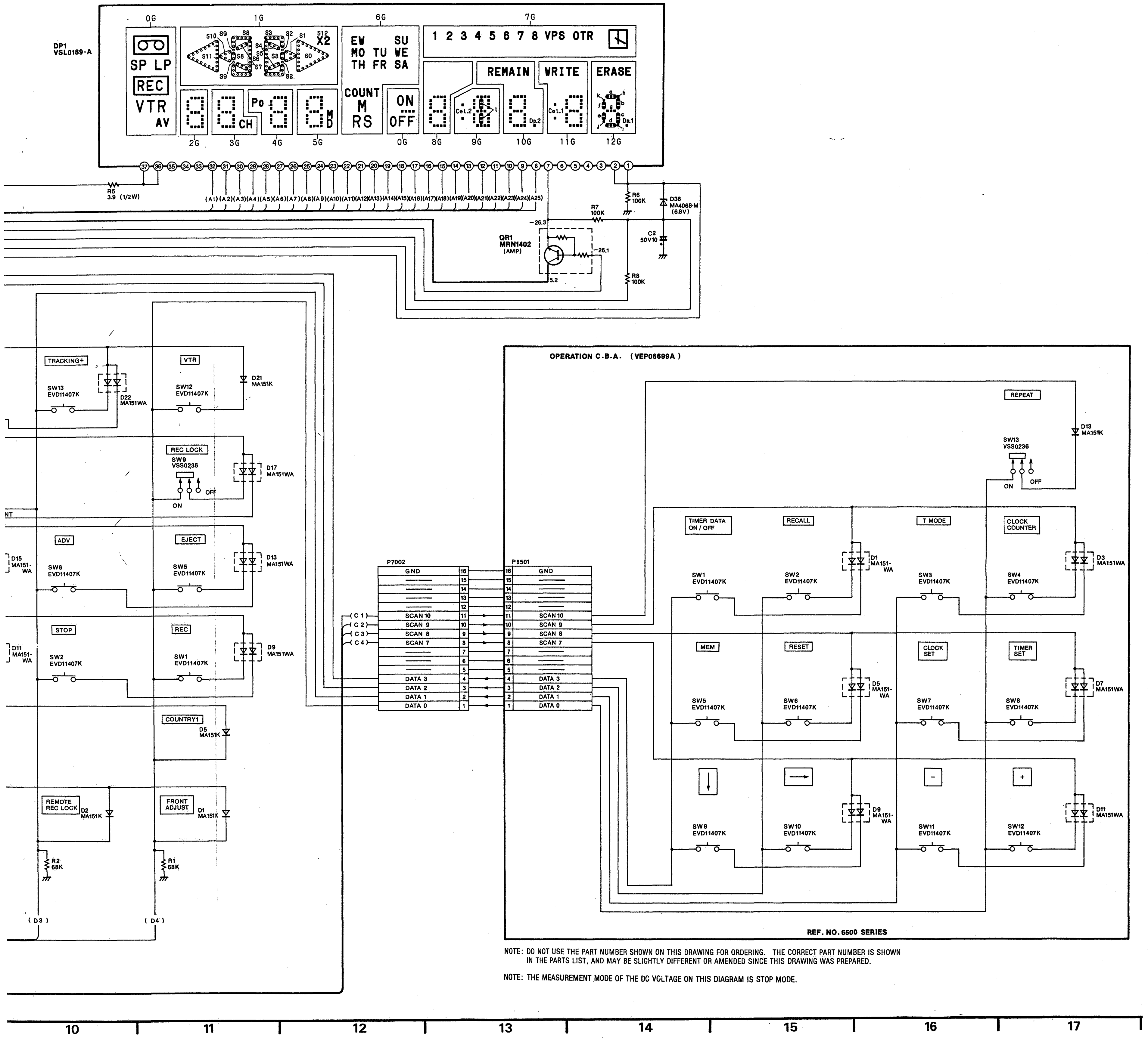
TRANSISTOR INFORMATION



TIMER & OPERATION SCHEMATIC DIAGRAM


IC1 M37421305SP
IC2 MN1220
IC3 MN1280-T
IC4 MN1280-L
P7003 (NOT CONNECT)
CHECKING
P7001 (TO MAIN)
P7501-1 HEATER+
P7501-2 HEATER−
P7501-3 REG −29V
P7501-4 BK.UP 5V
P7501-5 N.SW 5.3V
P7501-6 GND
P7501-7 PICT.CNT
P7501-8 TIMER CLK
P7501-9 TIMER DATA
P7501-10 TAPE LOSING (L)
P7501-11 PW.OFF (L)
P7501-12 OSD CLK
P7501-13 OSD DATA
P7501-14 OSD CS
FAST TP2
RESET TP3
ALARM
POWER
PICTURE
Q2 MSD602 (LED DRIVE)
Q3 MSD602 (LED DRIVE)
QR4 MRN1404 (POWER ON:Ⓛ)
QR3 MRN2403 (POWER ON:ON)
Q1 MSD601 (POWER ON:ON)
QR2 MRN1407 (INV)
D37 VLL0030
D41 VLL0030
D38 LN81RCPHL
D40 MA720
D39 MA151K
X1 ECRHA020E41 VSX0140-A
X2 ECRHA030E41 VSX0094-C
TIMER CLOCK (1)
TIMER CLOCK (2)
POWER VOLTAGE DET
OUTPUT CIRCUIT
GND
TPG
TP1
CLOCK
DP1 VSL0189-A
P7002
SCAN 10
SCAN 9
SCAN 8
SCAN 7
DATA 3
DATA 2
DATA 1
DATA 0
TRACKING−
TRACKING+
VTR
TIMER REC
SW10 VSS0312
EXT
INT
REC LOCK
SW9 VSS0236
ON
OFF
FF
STILL
ADV
EJECT
REW
PLAY
STOP
REC
RESERVE
COUNTRY1
AUTO REW
REMOTE REC LOCK
FRONT ADJUST
SW1–SW8, SW11–SW14 EVD11407K
D1–D8 MA151K
D9, D11, D13, D15, D17, D21, D22 MA151WA
REF. NO. 7000 SERIES

TIMER C.B.A. (VEP07608A) & OPERATION C.B.A. (VEP

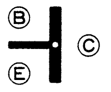


DP1
VSL0189-A
0G
1G
6G
7G
SP LP
REC
VTR
AV
CH
Po
EW SU
MO TU WE
TH FR SA
COUNT
M
RS
ON
OFF
1 2 3 4 5 6 7 8 VPS OTR
REMAIN
WRITE
ERASE
2G
3G
4G
5G
0G
8G
9G
10G
11G
12G
R5
3.9 (1/2W)
(A1)(A2)(A3)(A4)(A5)(A6)(A7)(A8)(A9)(A10)(A11)(A12)(A13)(A14)(A15)(A16)(A17)(A18)(A19)(A20)(A21)(A22)(A23)(A24)(A25)
R6
100K
D36
MA4068-M
(6.8V)
R7
100K
QR1
MRN1402
(AMP)
-26.3
-26.1
5.2
C2
50V10
R8
100K
TRACKING+
SW13
EVD11407K
D22
MA151WA
VTR
SW12
EVD11407K
D21
MA151K
REC LOCK
SW9
VSS0236
ON
OFF
D17
MA151WA
ADV
SW6
EVD11407K
D15
MA151-WA
EJECT
SW5
EVD11407K
D13
MA151WA
STOP
SW2
EVD11407K
D11
MA151-WA
REC
SW1
EVD11407K
D9
MA151WA
COUNTRY1
D5
MA151K
REMOTE REC LOCK
D2
MA151K
FRONT ADJUST
D1
MA151K
R2
68K
R1
68K
(D3)
(D4)
P7002
P6501
GND
SCAN 10
SCAN 9
SCAN 8
SCAN 7
DATA 3
DATA 2
DATA 1
DATA 0
(C1)
(C2)
(C3)
(C4)
OPERATION C.B.A. (VEP06699A)
REPEAT
D13
MA151K
SW13
VSS0236
ON
OFF
TIMER DATA ON / OFF
SW1
EVD11407K
RECALL
SW2
EVD11407K
D1
MA151-WA
T MODE
SW3
EVD11407K
CLOCK COUNTER
SW4
EVD11407K
D3
MA151WA
MEM
SW5
EVD11407K
RESET
SW6
EVD11407K
D5
MA151-WA
CLOCK SET
SW7
EVD11407K
TIMER SET
SW8
EVD11407K
D7
MA151WA
SW9
EVD11407K
SW10
EVD11407K
D9
MA151-WA
-
SW11
EVD11407K
+
SW12
EVD11407K
D11
MA151WA
REF. NO. 6500 SERIES
10
11
12
13
14
15
16
17

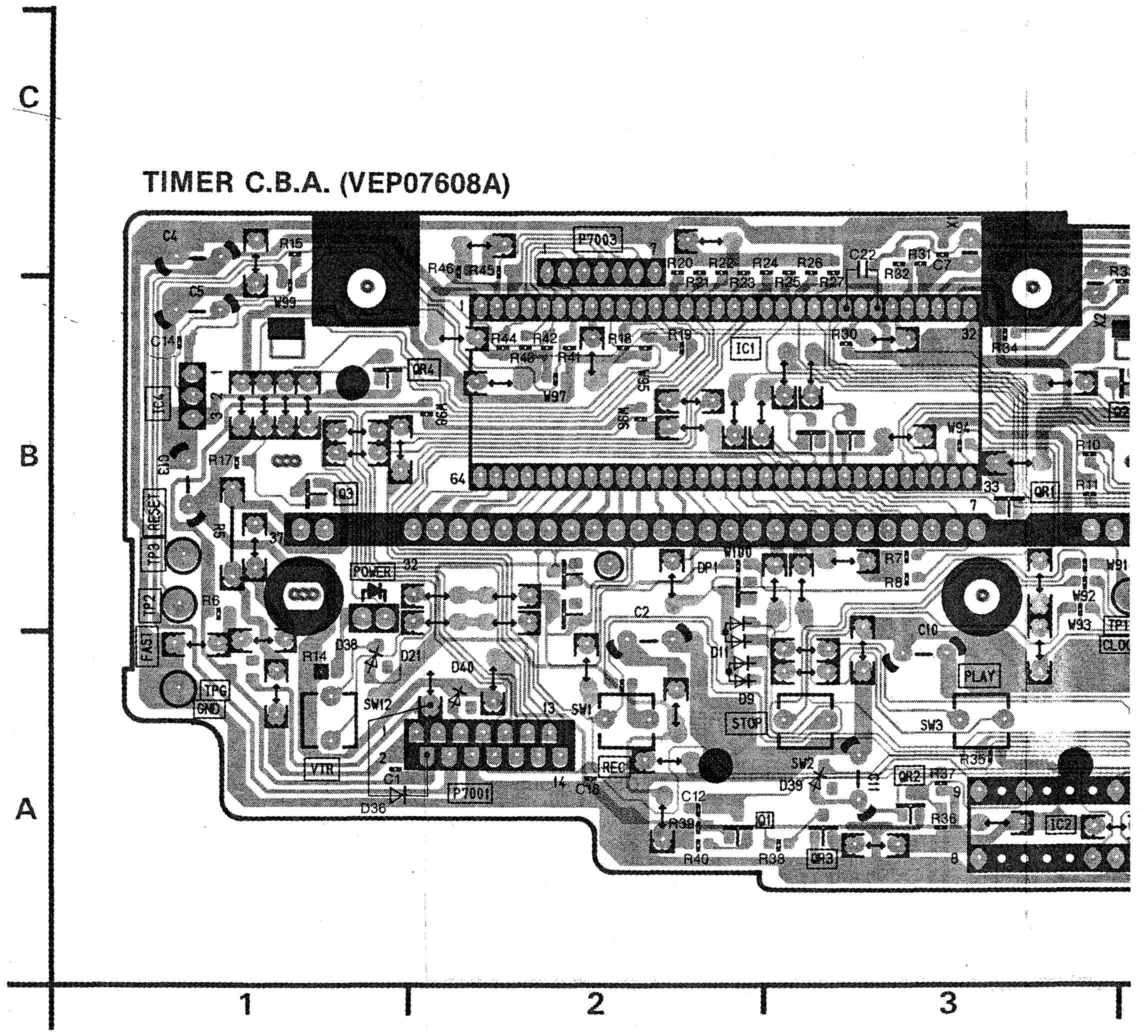
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

TRANSISTOR INFORMATION



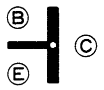
TIMER C.B.A. (VEP07608A)



C
B
A
1
2
3
P7003
P7001
IC1
IC2
QR1
QR2
QR3
QR4
POWER
REC
STOP
PLAY
SW1
SW2
SW3
SW12
D1
D9
D21
D36
D38
D39
D40
DP1
RESET
TP3
TP2
FAST
TPG
GND
TP1
CLO

TIMER C.B.A. (VEP07608A) & OPERATION C.B.A. (VEP06699A)

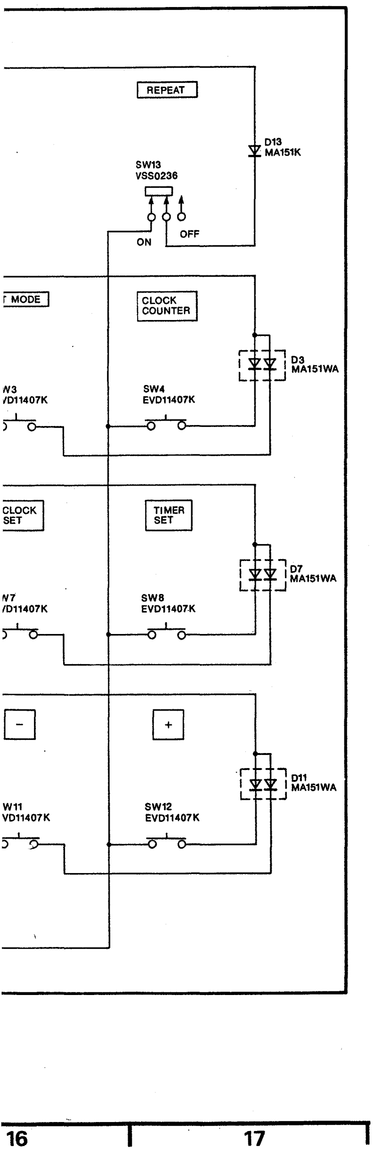
TRANSISTOR INFORMATION

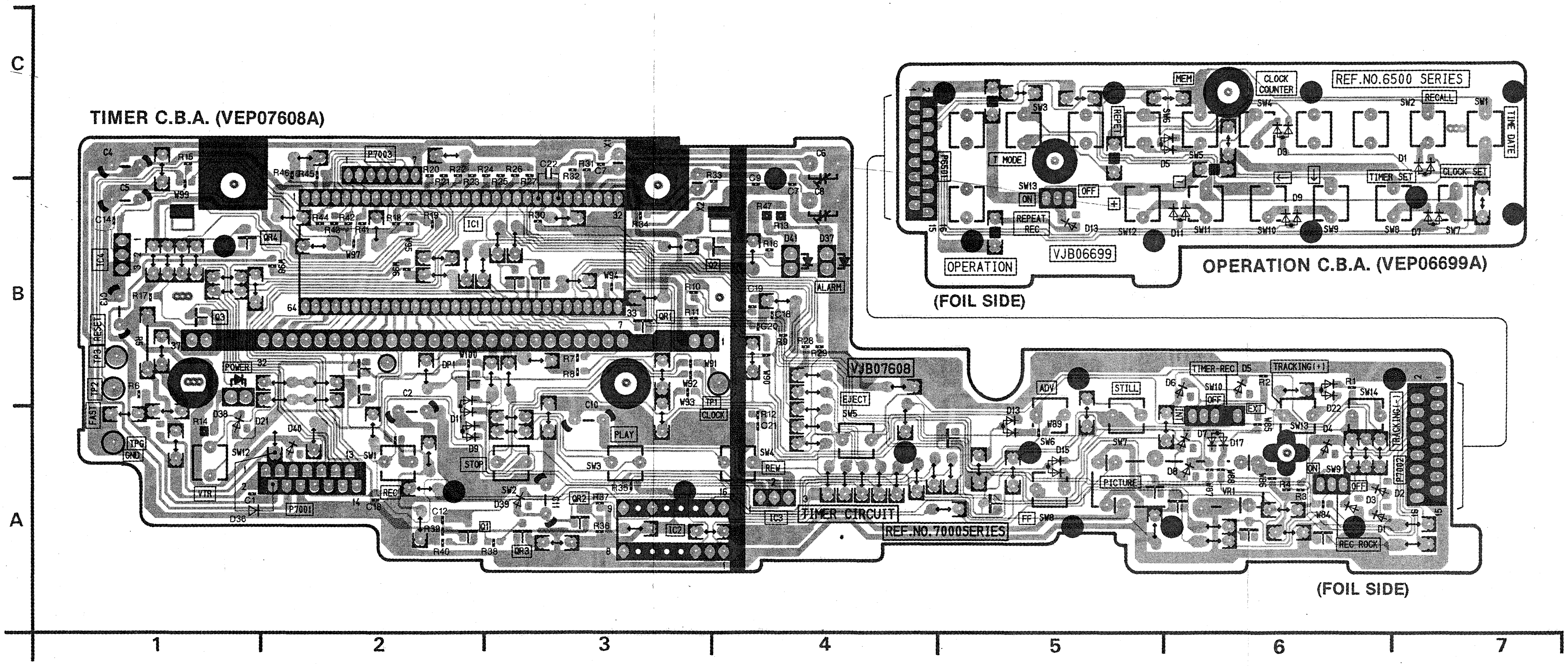


TIMER C.B.A. & OPERATION C.B.A.

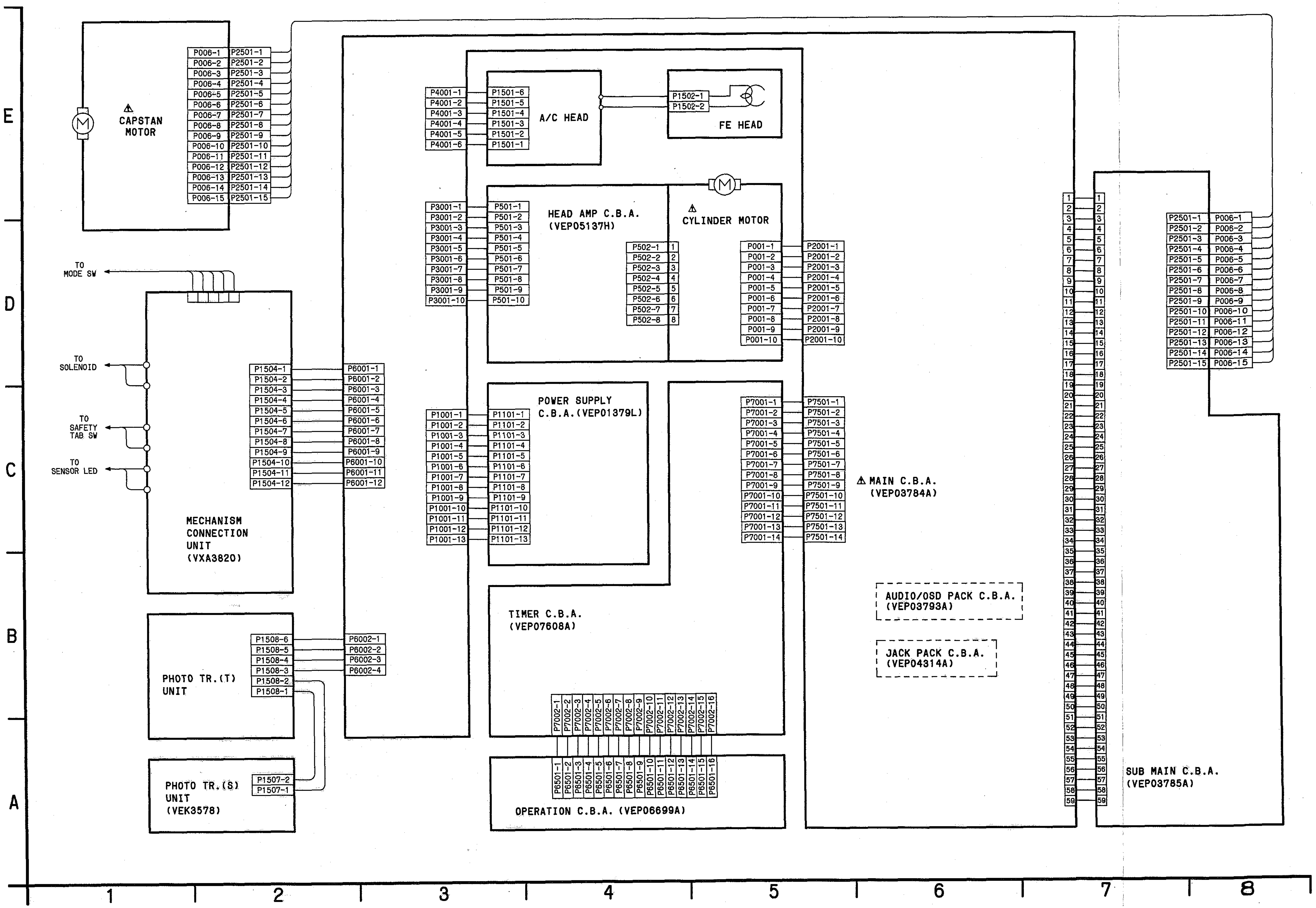
Transistor		**Integrated Circuit**		**Adjustment**	
Q7001	A-2	IC7001	B-2	C7006	C-4
Q7002	B-3	IC7002	A-3	C7008	B-4
Q7003	B-1	IC7003	A-4	**Connector**	
Transistor & Resistor		IC7004	B-1	P6501	C-4
QR7001	B-3	**Test Point**		P7001	A-1
QR7002	A-3	TP7002	B-1	P7002	A-7
QR7003	A-3	TP7003	B-1	P7003	C-2
QR7004	B-1	TP GND	A-1		

ADDRESS INFORMATION


REPEAT
D13 MA151K
SW13 VSS0236
ON
OFF
T MODE
CLOCK COUNTER
D3 MA151WA
W3 /D11407K
SW4 EVD11407K
CLOCK SET
TIMER SET
D7 MA151WA
W7 /D11407K
SW8 EVD11407K
-
+
D11 MA151WA
W11 VD11407K
SW12 EVD11407K
16
17


TIMER C.B.A. (VEP07608A)
OPERATION C.B.A. (VEP06699A)
(FOIL SIDE)
(FOIL SIDE)
C
B
A
1
2
3
4
5
6
7
VJB07608
TIMER CIRCUIT
REF.NO.7000SERIES
REF.NO.6500 SERIES
VJB06699
OPERATION
IC1
IC2
IC3
P7001
P7002
P7003
P6501
POWER
VTR
REC
STOP
PLAY
REW
FF
EJECT
FAST
ALARM
CLOCK
RESET
TP1
TP2
TP3
GND
TPG
STILL
ADV
PICTURE
TIMER-REC
TRACKING(+)
TRACKING(-)
REC ROCK
INT
EXT
ON
OFF
MEM
CLOCK COUNTER
RECALL
TIME DATE
T MODE
REPEAT REC
REPEAT
CLOCK SET
TIMER SET
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
SW14

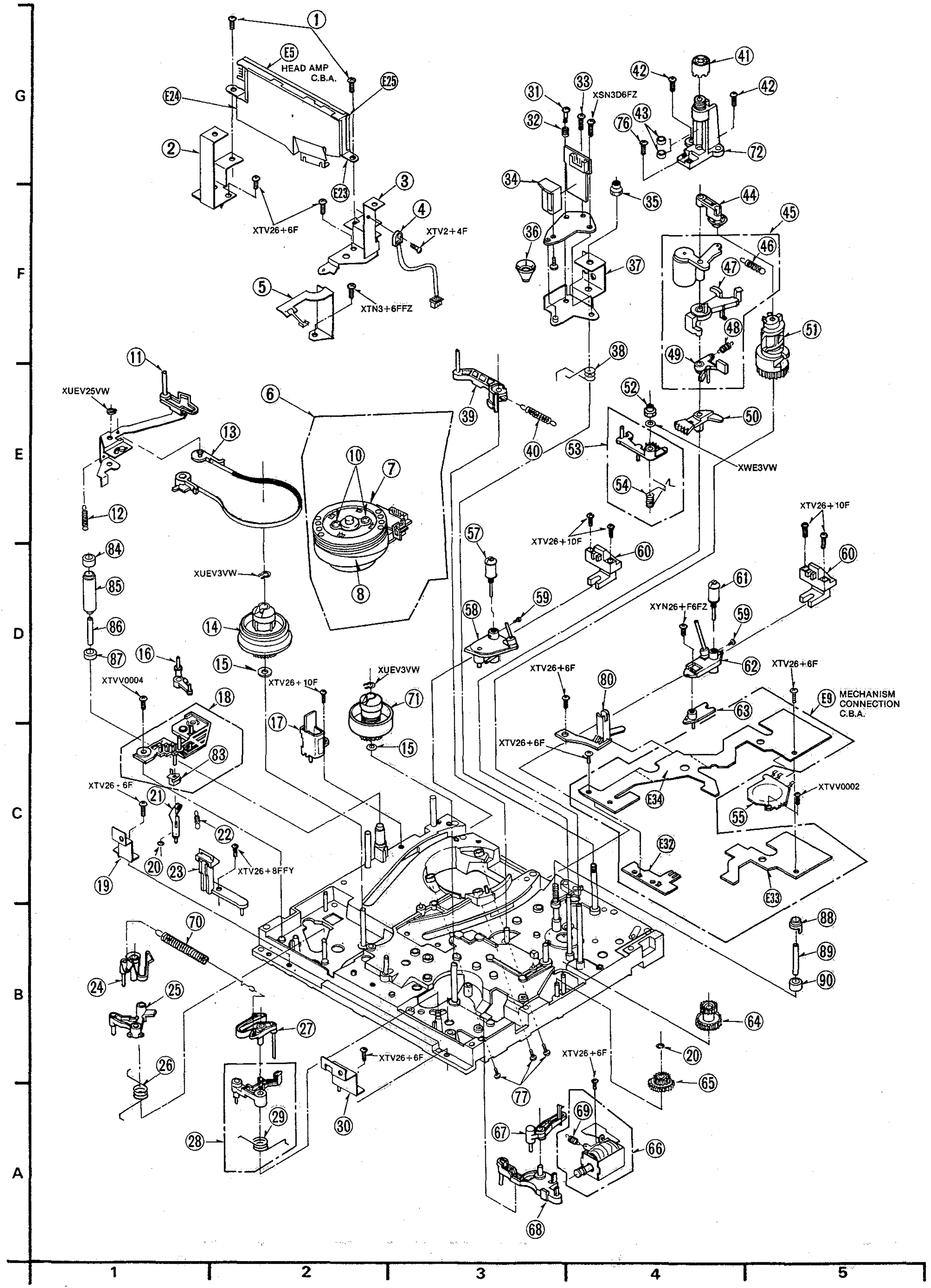
INTERCONNECTION SCHEMATIC DIAGRAM



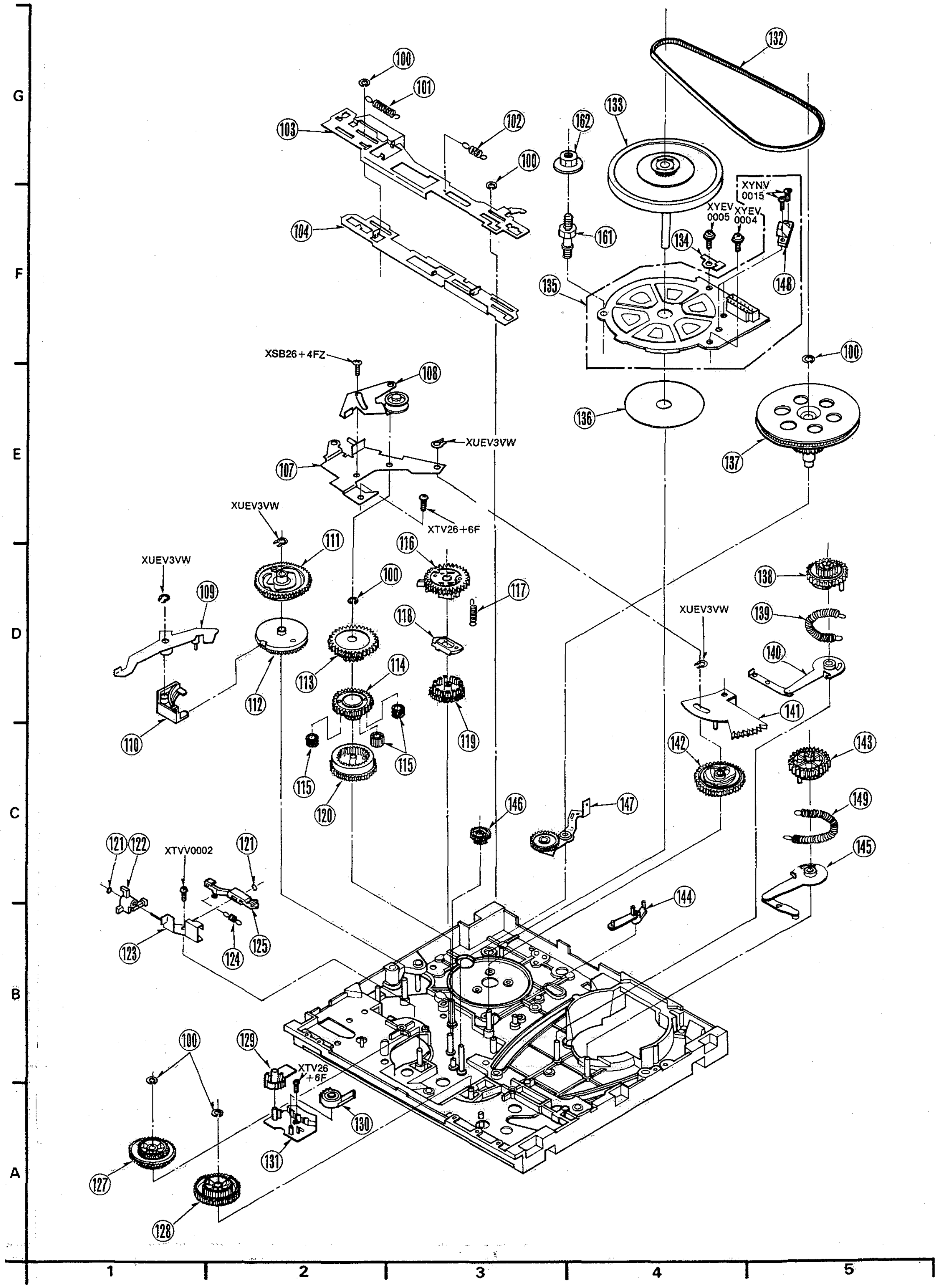
E
D
C
B
A
1
2
3
4
5
6
7
8
⚠ CAPSTAN MOTOR
TO MODE SW
TO SOLENOID
TO SAFETY TAB SW
TO SENSOR LED
MECHANISM CONNECTION UNIT (VXA3820)
PHOTO TR.(T) UNIT
PHOTO TR.(S) UNIT (VEK3578)
A/C HEAD
FE HEAD
HEAD AMP C.B.A. (VEP05137H)
⚠ CYLINDER MOTOR
POWER SUPPLY C.B.A.(VEP01379L)
TIMER C.B.A. (VEP07608A)
OPERATION C.B.A. (VEP06699A)
⚠ MAIN C.B.A. (VEP03784A)
AUDIO/OSD PACK C.B.A. (VEP03793A)
JACK PACK C.B.A. (VEP04314A)
SUB MAIN C.B.A. (VEP03785A)
P006-1 – P006-15
P2501-1 – P2501-15
P4001-1 – P4001-6
P1501-1 – P1501-6
P1502-1
P1502-2
P3001-1 – P3001-10
P501-1 – P501-10
P502-1 – P502-8
P001-1 – P001-10
P2001-1 – P2001-10
P1504-1 – P1504-12
P6001-1 – P6001-12
P1001-1 – P1001-13
P1101-1 – P1101-13
P7001-1 – P7001-14
P7501-1 – P7501-14
P1508-1 – P1508-6
P6002-1 – P6002-4
P1507-1
P1507-2
P7002-1 – P7002-16
P6501-1 – P6501-16
1 – 59

EXPLODED VIEWS

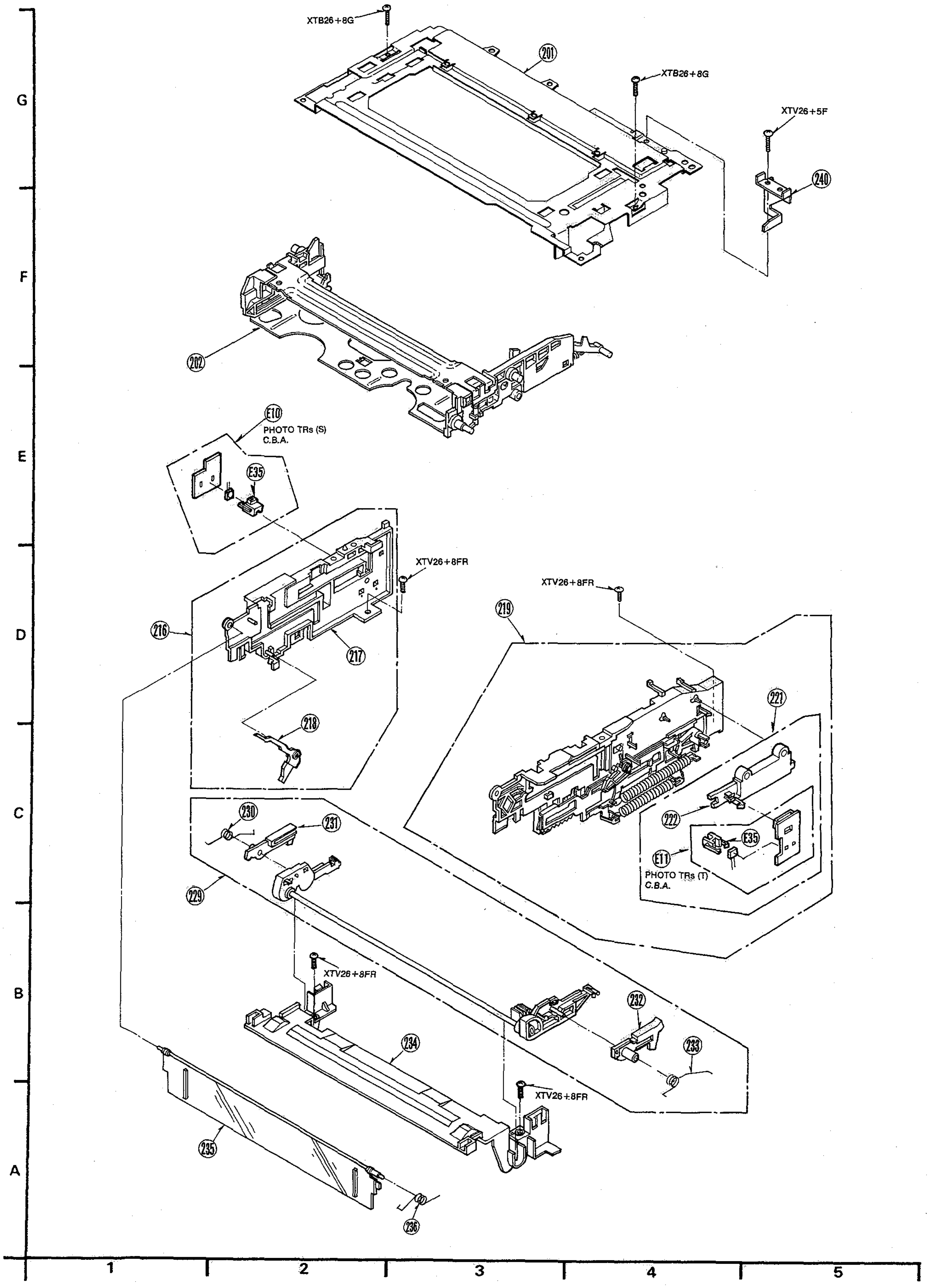
❶ *Chassis Parts Section (1)*


HEAD AMP C.B.A.
E5
E24
E25
E23
XTV26+6F
XTV2+4F
XTN3+6FFZ
XSN3D6FZ
XUEV25VW
XUEV3VW
XWE3VW
XTV26+10F
XYN26+F6FZ
XTVV0004
XTV26-6F
XTV26+8FFY
E9 MECHANISM CONNECTION C.B.A.
XTVV0002
E34
E32
E33
G
F
E
D
C
B
A
1
2
3
4
5

❷ *Chassis Parts Section (2)*

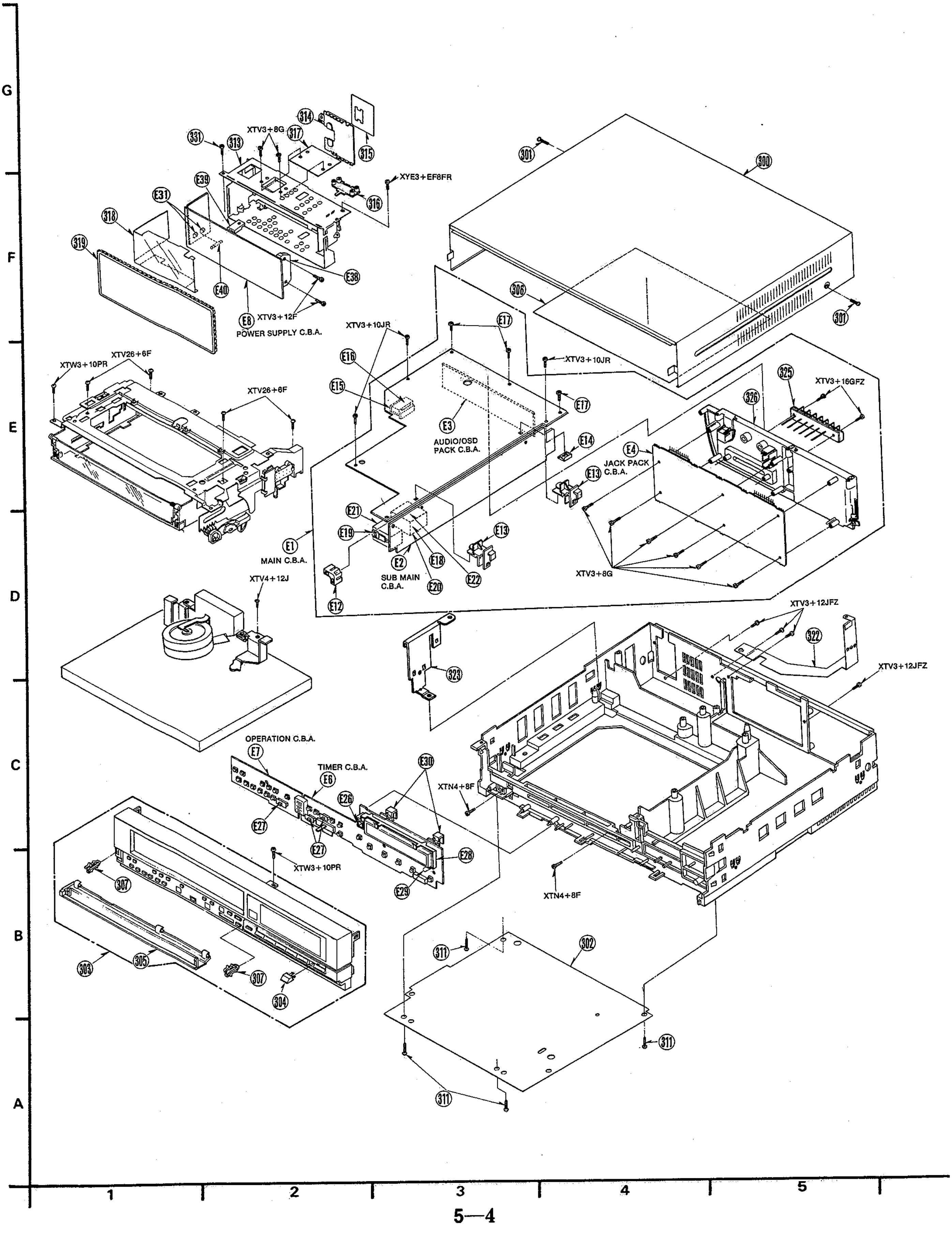

XYNV 0015
XYEV 0005
XYEV 0004
XSB26+4FZ
XUEV3VW
XTV26+6F
XTVV0002
XTV26 +6F
G
F
E
D
C
B
A
1
2
3
4
5

❸ Cassette Compartment Section



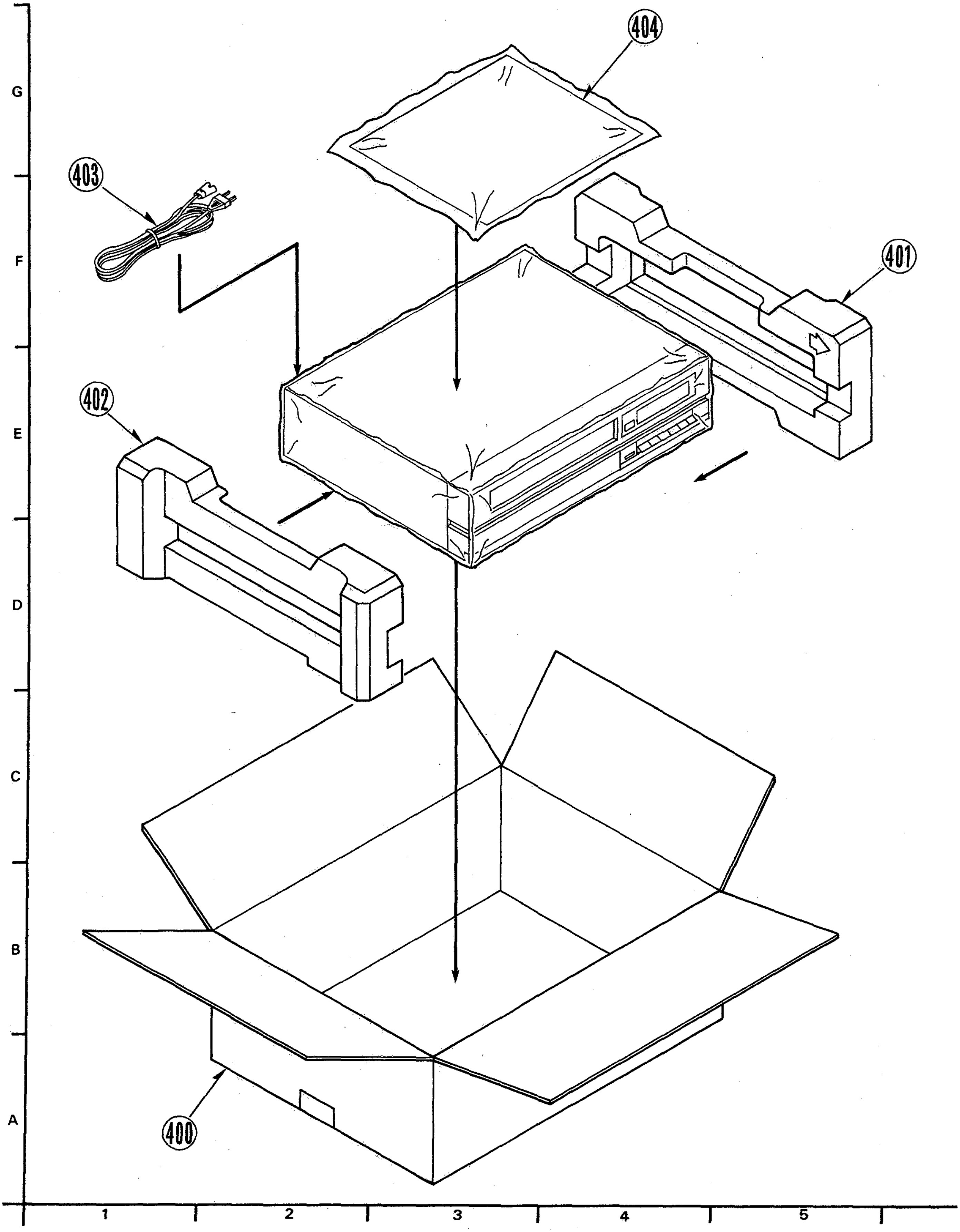
XTB26+8G
201
XTB26+8G
XTV26+5F
240
202
E10
PHOTO TRs (S)
C.B.A.
E35
XTV26+8FR
XTV26+8FR
216
217
219
218
221
222
E35
E11
PHOTO TRs (T)
C.B.A.
230
231
229
XTV26+8FR
232
233
234
XTV26+8FR
235
236
G
F
E
D
C
B
A
1
2
3
4
5

❹ Casing Parts Section



G
F
E
D
C
B
A
(331)
(313)
XTV3+8G
(317)
(314)
(315)
XYE3+EF8FR
(316)
(E39)
(E31)
(318)
(319)
(E40)
(E38)
(E8)
XTV3+12F
POWER SUPPLY C.B.A.
(301)
(300)
(306)
(301)
XTV3+10JR
(E17)
(E16)
(E15)
XTV3+10JR
(E17)
(E3)
AUDIO/OSD PACK C.B.A.
(E14)
(E4)
JACK PACK C.B.A.
(E13)
(325)
XTV3+16GFZ
(326)
XTW3+10PR
XTV26+6F
XTV26+6F
(E21)
(E19)
(E1)
MAIN C.B.A.
(E2)
SUB MAIN C.B.A.
(E18)
(E20)
(E22)
(E13)
(E12)
XTV3+8G
XTV4+12J
XTV3+12JFZ
(322)
XTV3+12JFZ
(323)
OPERATION C.B.A.
(E7)
TIMER C.B.A.
(E6)
(E30)
(E26)
(E27)
(E27)
(E28)
(E29)
XTN4+8F
XTW3+10PR
(307)
(307)
(303)
(305)
(304)
XTN4+8F
(311)
(302)
(311)
(311)
1
2
3
4
5

❺ Packing Parts Section


404
403
401
402
400
G
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REPLACEMENT PARTS LIST

Notes:

1. • Be sure to make your orders of replacement parts according to this list.
   • "⟨R⟩" in Remark column indicates recommended parts.
   • "⟨M⟩" in Remark column indicates needed in the periodical maintenance.
2. IMPORTANT SAFETY NOTICE
   Components identified by " ! " have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
   Meaning of symbol ! on this parts list is exactly the same as symbol ⚠ on Schematic and Circuit Board Diagrams.
3. Unless otherwise specified;
   All resistors are in OHMS (Ω), K=1,000Ω, M=1,000KΩ.
4. ITEM NUMBERS WITH CAPITAL LETTER E
   Item numbers with capital letter E (Example: E1, E2,...) in Ref. No. column mean that the parts are listed with the E item numbers in the exploded views.
5. The main assembled parts are shown below C.B.A. marked with "■".
6. When ordering parts, use part No. only from Part No. column.
7. Printed circuit board assembly with mark (NLA) is no longer available after discontinuation of the product.

1. SERVICING FIXTURES & TOOLS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VFM8080HMDH	VHS ALIGNMENT TAPE	1	
		VFK0329	POST ADJ. SCREWDRIVER	1	
		VFK0132	BACK TENSION METER	1	
			(TENTELOMETER,		
			MADE IN U.S.A.)		
		VFK0191	POST ADJ. PLATE	1	
		VFK0190	REEL TABLE HEIGHT GAUGE	1	
		VFK0343	CHECK LIGHT	1	
		VFK0269	L-TYPE SCREWDRIVER	1	
		VFK0328	H-POSITION ADJ. SCREWDRIVER	1	
		VFK0335	RETAINING RING REMOVER	1	
		VFK0326	HEX.WRENCH SET	1	
		MOR265	MORLYTONE GREASE	1	
		VFK27	HEAD CLEANING STICK	1	
		VFK0344	HEIGHT ADJ. FIXTURE	1	
		VFK0387	TENSION POST ADJ. PLATE	1	
		VFK66	FAN TYPE TENTION GUAGE	1	

2. MECHANICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
1(1)		VHD0141	HEAD AMP SET SCREW	2	
2(1)		VMA6897	HEAD AMP MOUNT ANGLE (L)	1	
3(1)		VMA6898	HEAD AMP MOUNT ANGLE (R)	1	
4(1)		VEK3185	DEW DETECTOR UNIT	1	
5(1)		VXS0082	EARTH PLATE UNIT	1	<M>
6(1)		VEG0759	CYLINDER UNIT	1	<!><R><M>
7(1)		VEH0385	UPPER CYLINDER UNIT	1	<!><R><M>
8(1)		VJR0082	RT TERMINAL	1	
10(1)		VHD0425	UPPER CYLINDER SET SCREW	2	
11(1)		VXL1495	TENSION ARM (1) UNIT	1	
12(1)		VMB1563	TENSION SPRING	1	
13(1)		VXZ0267	TENSION BAND UNIT	1	<R><M>
14(1)		VXR0185	SUPPLY REEL TABLE UNIT	1	<R><M>
15(1)		VMX1171	REEL WASHER (0.5mm)	2	<R>
15(1)		VMX1239	REEL WASHER (0.3mm)	2	<R>
15(1)		VMX1238	REEL WASHER (0.2mm)	2	<R>
16(1)		VXL1496	TENSION RELEASE ARM (A)	1	
			UNIT		
17(1)		VBS0038	FE HEAD	1	<R><M>
18(1)		VXA2705	TENSION ARM BASE (1) UNIT	1	
19(1)		VMA6895	MOUNT ANGLE (L)	1	
20(1)		VMX1079	CUT WASHER	2	
21(1)		VXL1497	TENSION RELEASE ARM (B)	1	
			UNIT		
22(1)		VMB1582	TENSION RELEASE SPRING	1	
23(1)		VES0489	SAFETY SW	1	<R>
24(1)		VXZ0259	SUPPLY MAIN BRAKE UNIT	1	<R><M>
25(1)		VXZ0274	SUPPLY SOFT BRAKE (1) UNIT	1	<R>
26(1)		VMB1564	SUPPLY SOFT BRAKE SPRING	1	
27(1)		VXZ0262	TAKE UP MAIN BRAKE UNIT	1	<M><R>
28(1)		VXZ0221	TAKE UP SOFT BRAKE UNIT	1	<R>
29(1)		VMB1561	TAKE UP SOFT BRAKE SPRING	1	
30(1)		VMA6896	MOUNT ANGLE (R)	1	
31(1)		VHD0322	ADJUST SCREW	1	
32(1)		VMB1251	ADJUST SPRING	1	
33(1)		VHD0089B	AZIMUTH ADJUST SCREW	1	
34(1)		VBR0132	A/C HEAD	1	<R><M>
35(1)		VHN0063	M4 NYLON NUT	1	
36(1)		VHN0110	ADJUST NUT	1	
37(1)		VMA7831	HEAD BASE	1	
38(1)		VMB1567	A/C HEAD SPRING	1	
39(1)		VXL1857	SUB LOADING ARM (1) UNIT	1	
40(1)		VMB1566	SUB POST SPRING	1	
41(1)		VXQ0006	THRUST SCREW UNIT	1	
42(1)		VHD0317	HOUSING SCREW	2	
43(1)		VMX1033	OIL SEAL	2	
44(1)		VMX1353	PINCH CAM CAP	1	
45(1)		VXL1858	PRESSURE ROLLER UNIT	1	<R><M>
46(1)		VMB1941	PIN PRESSURE SPRING	1	
47(1)		VML2232	PINCH PRESSURE ARM	1	
48(1)		VMB1569	PINCH PRESSURE ARM RELEASE	1	
			SPRING		
49(1)		VML1874	PINCH LIFT ARM	1	
50(1)		VDG0597	P5 PULL OUT SECTOR GEAR	1	
51(1)		VDG0421	PINCH CAM	1	
52(1)		VHD0045	NYLON NUT	1	
53(1)		VXL2027	P5 UNIT	1	
54(1)		VMB2718	P5 SPRING	1	
55(1)		VSS0175	MODE SW	1	<R><M>
57(1)		VXP0863	ROLLER POST UNIT	1	
58(1)		VXA4106	INCLIND BASE (S)(1) UNIT	1	<M>
59(1)		VHD0133	ROLLER POST SCREW	2	
60(1)		VMD0910	POST STOPPER	2	
61(1)		VXP0764A	ROLLER POST UNIT	1	
62(1)		VXA3876	INCLIND BASE (T)(1) UNIT	1	<M>
63(1)		VXA2687	INCLIND ADJUST PLATE UNIT	1	
64(1)		VDG0483	PINCH SPEED DOWN GEAR	1	
65(1)		VDG0332	CONNECTION GEAR	1	
66(1)		VXA3735	SOLENOID UNIT	1	<R>
67(1)		VXA2692	KICK ROD UNIT	1	
68(1)		VML1849	SOLENOID LEVER (1) UNIT	1	
69(1)		VMB1553	KICK ROD SPRING	1	
70(1)		VMB1958	MAIN BRAKE SPRING	1	
71(1)		VXR0188	TAKE UP REEL TABLE UNIT	1	<R><M>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
72(1)		VXD0101	HOUSING UNIT	1	<M>
76(1)		VHD0374	HOUSING SCREW	1	
77(1)		VHD0342	CYLINDER SCREW	3	
80(1)		VXA3520	LED HOLDER UNIT	1	
83(1)		VMB1733	LEAF SPRING	1	
84(1)		VMX1088	SUPPLY UPPER LIMITER	1	
85(1)		VDP1072	SUPPLY ROLLER	1	
86(1)		VMX1581	P1 COLLAR	1	
87(1)		VMX1533	SUPPLY ROLLER LIMITER	1	
88(1)		VMX1544	P4 UPPER LIMITER	1	
89(1)		VMX1568	P4 SLEEVE	1	
90(1)		VMX1534	P4 LOWER LIMITER	1	
100(2)		VMX1079	CUT WASHER	6	
101(2)		VMB1583	TAKE UP SOFT BRAKE RELEASE	1	
			ARM SPRING		
102(2)		VMB1560	MAIN LEVER SPRING	1	
103(2)		VXA3509	MAIN LEVER (1) UNIT	1	
104(2)		VMM0215	SUB LEVER	1	
107(2)		VXA3512	SS BRAKE BASE (1) UNIT	1	
108(2)		VXA3516	TENSION ROLLER UNIT	1	
109(2)		VXL1632	CAM FOLLOWER ARM UNIT	1	
110(2)		VML1861	DETENT ARM	1	
111(2)		VDG0574	MAIN CAM GEAR	1	<R><M>
112(2)		VDG0343	SUB CAM GEAR	1	
113(2)		VDG0348	CENTRE GEAR	1	
114(2)		VDG0422	RETAINER GEAR	1	
115(2)		VGD0345	PLANET GEAR	3	
116(2)		VDG0547	CLUTCH DISK	1	
117(2)		VMB1558	CLUTCH SPRING	1	
118(2)		VDG0350	LOCK SLIDE GEAR	1	
119(2)		VDG0335	DRIVE DISK	1	
120(2)		VDG0342	RING GEAR	1	
121(2)		VMX0967	CUT WASHER	2	
122(2)		VML1859	CHANGE LEVER	1	
123(2)		VXA2672	RELEASE LEVER (1) UNIT	1	
124(2)		VMB1557	RELEASE SPRING	1	
125(2)		VML1860	RELEASE LEVER	1	
127(2)		VXP1002	TAKE UP REEL GEAR UNIT	1	
128(2)		VDG0445	SUPPLY REEL GEAR	1	
129(2)		VML1858	RETURN LEVER (R)	1	
130(2)		VML1857	RETURN LEVER (L)	1	
131(2)		VMD0913	STOPPER BASE	1	
132(2)		VDV0169	TIMING BELT	1	<R><M>
133(2)		VXP1113	ROTOR UNIT	1	<R><M>
134(2)		VMA7941	ROTOR STOPPER	1	
135(2)		VEK4105	STATOR UNIT	1	<!><R>
136(2)		VMA6847	SUB PLATE	1	
137(2)		VXP0917	CENTRE PULLEY UNIT	1	
138(2)		VDG0564	LOADING GEAR (T)	1	
139(2)		VMB1555	LOADING SPRING (T)	1	
140(2)		VXL1489	LOADING ARM (T)(1) UNIT	1	
141(2)		VXA3515	SECTOR GEAR UNIT	1	
142(2)		VDG0448	LOADING CAM GEAR	1	<M>
143(2)		VDG0419	LOADING GEAR (S)	1	
144(2)		VML1855	PLAY CONTROL ARM	1	
145(2)		VXL1487	LOADING ARM (S)(1) UNIT	1	
146(2)		VDG0546	INTERMEDIATE GEAR	1	
147(2)		VXL1861	PLAY ARM UNIT	1	
148(2)		VBK0048	FG HEAD	1	<R>
149(2)		VMB1746	LOADING SPRING (S)	1	
161(2)		VHD0431	STATOR SPACER SCREW	1	
162(2)		VHN0102	STATOR NUT	1	
201(3)		VMA7223	TOP PLATE	1	
202(3)		VXA3832	CASSETTE HOLDER UNIT	1	
216(3)		VXA2676	SIDE PLATE (L) UNIT	1	
217(3)		VMD0917	SIDE PLATE (L)	1	
218(3)		VML1880	OPENER LEVER	1	
219(3)		VXA3895	SIDE PLATE (R) UNIT	1	
221(3)		VXA4642	SLIDE SW UNIT	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
222(3)		VSS0258	SLIDE SW	1	
229(3)		VXP0987	MAIN SHAFT UNIT	1	
230(3)		VMB1836	SUB WIPER SPRING (L)	1	
231(3)		VML1878	SUB WIPER ARM (L)	1	
232(3)		VML1879	SUB WIPER ARM (R)	1	
233(3)		VMB1837	SUB WIPER SPRING (R)	1	
234(3)		VMA6900	CASSETTE GUIDE	1	
235(3)		VKF0836	BLINDER PANEL	1	<R>
236(3)		VMB1258	BLINDER SPRING	1	
240(3)		VMA7224	CASSETTE HOLDER ANGLE	1	
300(4)		VGM0504	TOP PANEL	1	<R>
301(4)		VHD0304	TOP PANEL SCREW	2	
302(4)		VKU0325	BOTTOM PLATE	1	
303(4)		VYP3350	FRONT PANEL UNIT	1	<R>
304(4)		VGK1881	DECORATION BUTTON	1	
305(4)		VYF1613	FRONT DOOR UNIT	1	<R>
306(4)		VMZ0915	INSULATOR SHEET	1	
307(4)		VGQ0550	DOOR LOCK PIECE	2	
311(4)		VHD0059	BOTTOM PLATE SCREW	4	
313(4)		VXA3635	POWER SHIELD CASE (MAIN)	1	
			UNIT	1	
314(4)		VSC2351	POWER SHIELD COVER (TOP)	1	
315(4)		VGH1476	NAME PLATE	1	
316(4)		VGQ1377	IC. HOLDER	1	
317(4)		VMZ1224	INSULATION SHEET	1	<!><R>
318(4)		VMZ1140	SW BARRIER (A)	1	<!><R>
319(4)		VSC2237	POWER SHIELD COVER (BOOTOM)	1	
322(4)		VMP2455	TOP HOLDER ANGLE (RR)	1	
323(4)		VMP2456	TOP HOLDER ANGLE (RL)	1	
325(4)		VJH0498A006	TERMINAL BASE	1	
326(4)		VEJ1063	REAR PANEL	1	
331(4)		VHD0141	MAIN SCREW	1	
400(5)		VPG5642	PACKING CASE	1	AG-6024-E <R>
400(5)		VPG5643	PACKING CASE	1	AG-6024-B <R>
401(5)		VPN2624	CUSHION (R)	1	
402(5)		VPN2625	CUSHION (L)	1	
403(5)		VJA0449	AC POWER CORD	1	AG-6024-E/B <!><R>
403(5)		VJA0568	AC POWER CORD	1	AG-6024-B <!><R>
404(5)		VQT3843	OPERATING INSTRUCTIONS	1	AG-6024-E <!><R>
			(ENGLISH, GERHAN, FRENCH)		
404(5)		VQT3844	OPERATING INSTRUCTIONS	1	AG-6024-B <!><R>
			(ENGLISH)		

3. ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
E1		VEP03784A	MAIN C.B.A.	1	(NLA)<R>
					INCLUDING THE
					SUB MAIN C.B.A.
					(VEP03785A)
					AUDIO/OSD PACK C.B.A.
					(VEP03793A)
					JACK PACK C.B.A.
					(VEP04314A)
E2		VEP03785A	SUB MAIN C.B.A.	1	(NLA)<R>
					PARTS LIST IS
					INCLUDED IN MAIN
					C.B.A. (VEP03784A)
E3		VEP03793A	AUDIO / OSD PACK C.B.A.	1	(NLA)<R>
					PARTS LIST IS
					IINCLUEDE IN MAIN
					C.B.A. (VEP03784A)
E4		VEP04314A	JACK PACK C.B.A.	1	(NLA)<R>
					PARTS LIST IS
					IINCLUEDE IN MAIN
					C.B.A. (VEP03784A)
E5		VEP05137H	HEAD AMP C.B.A.	1	(NLA)<R>
E6		VEP07608A	TIMER C.B.A.	1	(NLA)<R>
E7		VEP06699A	OPERATION C.B.A.	1	(NLA)<R>
E8		VEP01379L	POWER SUPPLY C.B.A.	1	(NLA)<R>
					FOR AG-6024-B/E
E9		VXA3820	MECHANISM CONNECTION C.B.A.	1	(NLA)<R>
E10		VEK3578	SUPPLY PHOTO TR C.B.A.	1	(NLA)<R>
E11		VEK4058	TAKE-UP PHOTO TR C.B.A.	1	(NLA)<R>
	■	VEP03784A	MAIN C.B.A.		INCLUDING THE
					SUB MAIN C.B.A.
					(VEP03785A)
					AUDIO/OSD PACK
					C.B.A. (VEP03793A)
					JACK APCK C.B.A.
					(VEP04314A)
C1001		ECEA1EK470	E.CAPACITOR 25V 47U	1	
C1003		ECEA0JK101	E.CAPACITOR 6.3V 100U	1	
C1004		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C2001		ECEA1EK100	E.CAPACITOR 25V 10U	1	
C2002-05		ECUM1E104KBM	C.CAPACITOR CH 25V 0.1U	4	
C2006		ECUM1E823KBM	C.CAPACITOR CH 25V 0.082U	1	
C2007		ECEA1EKN4R7	E.CAPACITOR 25V 4.7U	1	
C2008		ECUM1E473KBN	C.CAPACITOR CH 25V 0.047U	1	
C2009		ECEA1EKN4R7	E.CAPACITOR 25V 4.7U	1	
C2010		ECEA1CK220	E.CAPACITOR 16V 22U	1	
C2011		ECEA1EKN4R7	E.CAPACITOR 25V 4.7U	1	
C2012-15		ECUM1H271JCN	C.CAPACITOR CH 50V 270P	4	
C2016		ECUM1H273KBN	C.CAPACITOR CH 50V 0.027U	1	
C2017		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C2101		ECEA0JK330	E.CAPACITOR 6.3V 33U	1	
C2102		ECQV1H683JZ	P.CAPACITOR 50V 0.068U	1	
C2103		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C2104		ECUM1H150JCN	C.CAPACITOR CH 50V 15P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C2105		ECUM1H181JCN	C.CAPACITOR CH 50V 180P	1	
C2106		ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C2107		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C2108		ECEA1AK470	E.CAPACITOR 10V 47U	1	
C2109		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C2110		ECUM1H332KBN	C.CAPACITOR CH 50V 3300P	1	
C2111		ECQB1H472JZ	P.CAPACITOR 50V 4700P	1	
C2112		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C2113		ECQV1H474JZ	P.CAPACITOR 50V 0.47U	1	
C2114		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C2115		ECUM1E104KBM	C.CAPACITOR CH 25V 0.1U	1	
C2118		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C2119		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C2121		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C2122		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C2124		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C2125		ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1	
C2131,32		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	2	
C2133		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C2134,35		ECUM1H271JCN	C.CAPACITOR CH 50V 270P	2	
C2137,38		ECUM1H271JCN	C.CAPACITOR CH 50V 270P	2	
C2140		ECUM1H271JCN	C.CAPACITOR CH 50V 270P	1	
C2141		ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1	
C2142		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C2143,44		ECUM1H151JCN	C.CAPACITOR CH 50V 150P	2	
C2145		ECKF1H103ZF	C.CAPACITOR 50V 0.01U	1	
C2201		ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C2202		ECUM1E473KBN	C.CAPACITOR CH 25V 0.047U	1	
C2203		ECEA0JK330	E.CAPACITOR 6.3V 33U	1	
C2204		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C2205		ECEA0JK330	E.CAPACITOR 6.3V 33U	1	
C2206		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C2207,08		ECEA1HK3R3	E.CAPACITOR 50V 3.3U	2	
C2209,10		ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	2	
C2211		ECEA1HK3R3	E.CAPACITOR 50V 3.3U	1	
C2212		ECQV1H474JZ	P.CAPACITOR 50V 0.47U	1	
C2213		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C2215		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C2501		ECEA0JU472	E.CAPACITOR 6.3V 4700U	1	
C2502		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C2503		ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C2504		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C2505		ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C2506		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C2507		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C2508		ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C2509		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C2511-14		ECUM1H333KBN	C.CAPACITOR CH 50V 0.033U	4	
C2515-17		ECEA1HK2R2	E.CAPACITOR 50V 2.2U	3	
C2518-20		ECUM1H332KBN	C.CAPACITOR CH 50V 3300P	3	
C2522-24		ECEA1HKR33	E.CAPACITOR 50V 0.33U	3	
C2537		ECEA1CU472	E.CAPACITOR 16V 4700U	1	
C3001,02		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	2	
C3003		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C3004		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C3005		ECUM1H820JCN	C.CAPACITOR CH 50V 82P	1	
C3006		ECUM1H181JCN	C.CAPACITOR CH 50V 180P	1	
C3007		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3009-11		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	3	
C3012		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C3013		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3014		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C3015		ECEA0JK101	E.CAPACITOR 6.3V 100U	1	
C3016-18		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	3	
C3019		ECUM1H151JCN	C.CAPACITOR CH 50V 150P	1	
C3020		ECUM1H270JCN	C.CAPACITOR CH 50V 27P	1	
C3021		ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C3022		ECUM1H270JCN	C.CAPACITOR CH 50V 27P	1	
C3023		ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C3024		ECUM1H080DCN	C.CAPACITOR CH 50V 80P	1	
C3025		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3026		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C3027		ECUM1E224ZFM	C.CAPACITOR CH 25V 0.22U	1	
C3028		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C3029		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3201		ECUM1H121JCN	C.CAPACITOR CH 50V 120P	1	
C3203		ECQB1H332JZ	P.CAPACITOR 50V 3300P	1	
C3204		ECQM1H473JV	P.CAPACITOR 50V 0.047U	1	
C3205,06		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	2	
C3207		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C3208		ECEA0JK101	E.CAPACITOR 6.3V 100U	1	
C3209		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3210		ECQP1H392JZ	P.CAPACITOR 50V 3900P	1	
C3211		ECEA1HKGR68	E.CAPACITOR 50V 0.68U	1	
C3212		ECQM1H152JV	P.CAPACITOR 50V 1500P	1	
C3213		ECEA0JK330	E.CAPACITOR 6.3V 33U	1	
C3214		ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C3215		ECUM1H561JCN	C.CAPACITOR CH 50V 560P	1	
C3216		ECEA1HKR33	E.CAPACITOR 50V 0.33U	1	
C3217		ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C3218		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3219		ECEA1HK4R7	E.CAPACITOR 50V 4.7U	1	
C3220		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C3221		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3222		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C3223		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3224		ECEA1HKR22	E.CAPACITOR 50V 0.22U	1	
C3226		ECUM1H150JCN	C.CAPACITOR CH 50V 15P	1	
C3227		ECUM1H270JCN	C.CAPACITOR CH 50V 27P	1	
C3228		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C3229		ECUM1H121JCN	C.CAPACITOR CH 50V 120P	1	
C3231		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3233		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C3234		ECUM1H390JCN	C.CAPACITOR CH 50V 39P	1	
C3235		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3236		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	1	
C3237,38		ECUM1H120JCN	C.CAPACITOR CH 50V 12P	2	
C3239		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3240		ECEA0JK101	E.CAPACITOR 6.3V 100U	1	
C3241		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3242		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C3243		ECUM1H390JCN	C.CAPACITOR CH 50V 39P	1	
C3244		ECQM1H683JV	P.CAPACITOR 50V 0.068U	1	
C3245		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	1	
C3246		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C3247-49		ECUM1H101JCN	C.CAPACITOR CH 50V 100P	3	
C3301		ECEA1HKN2R2	E.CAPACITOR 50V 2.2U	1	
C3302		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3303		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C3304		ECEA0JU331	E.CAPACITOR 6.3V 330U	1	
C3305		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C3306		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	1	
C3307		ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	
C3308		ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C3310		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C3311,12		ECUM1H180JCN	C.CAPACITOR CH 50V 18P	2	
C3313		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C3314		ECUM1H820JCN	C.CAPACITOR CH 50V 82P	1	
C3315		ECUM1H680JCN	C.CAPACITOR CH 50V 68P	1	
C3317		ECEA1AK470	E.CAPACITOR 10V 47U	1	
C3319		ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C3320		ECUM1H270JCN	C.CAPACITOR CH 50V 27P	1	
C3321		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C3322		ECEA1HK2R2	E.CAPACITOR 50V 2.2U	1	
C3324		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C3326		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3327,28		ECEA1CK100	E.CAPACITOR 16V 10U	2	
C3329		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3331		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3332		ECQV1H334JZ	P.CAPACITOR 50V 0.33U	1	
C3333		ECEA1HK4R7	E.CAPACITOR 50V 4.7U	1	
C3334		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3335		ECUM1H680JCN	C.CAPACITOR CH 50V 68P	1	
C3337		ECUM1H270JCN	C.CAPACITOR CH 50V 27P	1	
C3338		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C3339		ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C3340		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	1	
C3341,42		ECEA0JKN470	E.CAPACITOR 6.3V 47U	2	
C3343		ECUM1H680JCN	C.CAPACITOR CH 50V 68P	1	
C3349		ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3350		ECQB1H153JZ	P.CAPACITOR 50V 0.015U	1	
C3351		ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C3352		ECQB1H562JZ	P.CAPACITOR 50V 5600P	1	
C3353		ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C3354		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3355		ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C3361		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C3363		ECUM1H100DCN	C.CAPACITOR CH 50V 10P	1	
C3814		ECEA1AK101	E.CAPACITOR 10V 100U	1	
C3815		ECQV1H154JZ	P.CAPACITOR 50V 0.15U	1	
C3816		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C3817		ECQV1H124JZ	P.CAPACITOR 50V 0.12U	1	
C3818		ECUM1H391JCN	C.CAPACITOR CH 50V 390P	1	
C3819		ECUM1H820JCN	C.CAPACITOR CH 50V 82P	1	
C3820		ECEA1HK2R2	E.CAPACITOR 50V 2.2U	1	
C3821		ECEA1HFS4R7	E.CAPACITOR 50V 4.7U	1	
C3823		ECEA1HK2R2	E.CAPACITOR 50V 2.2U	1	
C3824		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C3825		ECUM1H181JCN	C.CAPACITOR CH 50V 180P	1	
C3826		ECEA1AU221	E.CAPACITOR 10V 220U	1	
C3827		ECUM1H050DCN	C.CAPACITOR CH 50V 50P	1	
C3828		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C3829		ECQV1H474JZ	P.CAPACITOR 50V 0.47U	1	
C3830		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	1	
C3831,32		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C3833		ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C3834		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C4030		ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1	
C4031		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4032		ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1	
C4033		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4401		ECQB1H153JZ	P.CAPACITOR 50V 0.015U	1	
C4402		ECEA16M33	E.CAPACITOR 16V 33U	1	
C4403		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C4404		ECQP1332JZ	P.CAPACITOR 100V 3300P	1	
C4405		ECCD2H121J	C.CAPACITOR 500V 120P	1	
C4406		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C4407		ECEA1CK330	E.CAPACITOR 16V 33U	1	
C4408		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C4409		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	1	
C4410		ECQB1H123JZ	P.CAPACITOR 50V 0.012U	1	
C4412		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C4413		ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C4415		ECEA16M10R	E.CAPACITOR 16V 10.U	1	
C4416		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C4417		ECEA16M10R	E.CAPACITOR 16V 10.U	1	
C4418		ECQB1H123JZ	P.CAPACITOR 50V 0.012U	1	
C4419		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C4420		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C4421		ECEA1AK470	E.CAPACITOR 10V 47U	1	
C4422		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C4423		ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C4424,25		ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
C4426		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4427		ECQV1H154JZ	P.CAPACITOR 50V 0.15U	1	
C4429		ECEA16M10R	E.CAPACITOR 16V 10.U	1	
C4501		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C4502		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C4503		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C4504		ECKF1H681KB	C.CAPACITOR 50V 680P	1	
C4505		ECEA1CK470	E.CAPACITOR 16V 47U	1	
C4506-08		ECKF1H102KB	C.CAPACITOR 50V 1000P	3	
C6001		ECEA0JK101	E.CAPACITOR 6.3V 100U	1	
C6002,03		ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
C6004		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C6006		ECEA1EK330	E.CAPACITOR 25V 33U	1	
C6008		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C6009		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C6010,11		ECEA1HK010	E.CAPACITOR 50V 1U	2	
C6012		ECEA0JK101	E.CAPACITOR 6.3V 100U	1	
C6013		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C6014		ECUM1H151JCN	C.CAPACITOR CH 50V 150P	1	
C6015,16		ECUM1H330JCN	C.CAPACITOR CH 50V 33P	2	
C6017		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C6019		ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C6020		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C6021		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C6025		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C6026		ECKF1H103ZF	C.CAPACITOR 50V 0.01U	1	
C6301		ECA0JFQ102	E.CAPACITOR 6.3V 1000U	1	
C7421		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
CT3201		ECV1ZW20X60	V.CAPACITOR 20P	1	
D1001,02		MA151K	DIODE	2	<R>
D2001-03		MA151K	DIODE	3	<R>
D2101		MA720	DIODE	1	<R>
D2102		MA153	DIODE	1	<R>
D2104		MA153	DIODE	1	<R>
D2201		MA151K	DIODE	1	<R>
D2501		MA151WA	DIODE	1	<R>
D2503,04		MA736	DIODE	2	<R>
D2505		MA4150L	DIODE	1	<R>
D3001		MA151K	DIODE	1	<R>
D3202		MA29WA	DIODE	1	<R>
D3301		MA4091	DIODE	1	<R>
D4403		MA151K	DIODE	1	<R>
D6001		MA151K	DIODE	1	<R>
D6002		MA3051M	DIODE	1	<R>
D6003-06		MA151K	DIODE	4	<R>
D6007		11ES1	DIODE	1	<R>
D6302		MA720	DIODE	1	<R>
DL3802		VLD0147	DELAY LINE	1	
F2501		VSF0077	FUSE	1	<!><R>
FL3302		VLF0499	FILTER	1	
FL3303		VLF0727	FILTER	1	
FL3304		VLF0878	FILTER	1	
FL3305		ELB4M022	FILTER	1	
FL3801		VLF0299	FILTER	1	
IC2001		AN3815K	IC	1	<R>
IC2002		MC14011BF	IC	1	<R>
IC2101		MN6742VCRJ	IC	1	<R>
IC2102		MN1280R	IC	1	<R>
IC2103		LM2903M	IC	1	<R>
IC2201		AN3726K	IC	1	<R>
IC2202		MC14013BF	IC	1	<R>
IC2203		AN78N05	IC	1	<R>
IC2501		BA6435S	IC	1	<R>
IC2502		LM358PS	IC	1	<R>
IC3001		MC14053BF	IC	1	<R>
IC3201		AN3916LF	IC	1	<R>
IC3202		AN3296S	IC	1	<R>
IC3203		M50455-001SP	IC	1	<R>
IC3204		MN1280P	IC	1	<R>
IC3205		AN78L05	IC	1	<R>
IC3301		VEFH03D	HIC	1	<R>
IC3303		MSM6965-3RS	IC	1	<R>
IC3304		NJM2233BMA	IC	1	<R>
IC3801		VEFH04F	HIC	1	<R>
IC4401		BA7766AS	IC	1	<R>
IC6001		MN188166D69	IC	1	<R>
IC6005		MN1280R	IC	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
J301		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
J801		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
J6003		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
L2006		VLQEL05F221K	COIL 200UH	1	
L2101		VLQEL05F101K	COIL 100UH	1	
L2102,03		VLQEL05F470K	COIL 47UH	2	
L2501		VLQEL05S102K	COIL 1000UH	1	
L3001		VLQEL05S3R3J	COIL 3.3UH	1	
L3002		VLQEL05S820K	COIL 82UH	1	
L3003		VLQEL05S151J	COIL 150UH	1	
L3004,05		VLQEL05F101K	COIL 100UH	2	
L3006		VLQEL05S6R8J	COIL 6.8UH	1	
L3007		VLQEL05F101K	COIL 100UH	1	
L3008		VLQEL05T120J	COIL 12UH	1	
L3009		VLQEL05F101K	COIL 100UH	1	
L3203		VLQEL05F101K	COIL 100UH	1	
L3204		VLQEL05S150K	COIL 15UH	1	
L3205,06		VLQEL05F101K	COIL 100UH	2	
L3207,08		VLQEL05F470K	COIL 47UH	2	
L3209		VLQEL05F101K	COIL 100UH	1	
L3301		VLQEL05F101K	COIL 100UH	1	
L3302		VLQEL05S220K	COIL 22UH	1	
L3303		VLQEL05F101K	COIL 100UH	1	
L3304		VLQEL05S680J	COIL 68UH	1	
L3306		VLQEL05F101K	COIL 100UH	1	
L3307		VLQEL05S151J	COIL 150UH	1	
L3308		VLQEL05S270K	COIL 27UH	1	
L3309,10		VLQEL05F101K	COIL 100UH	2	
L3311		VLQEL05S2R2K	COIL 2.2UH	1	
L3804		VLQEL05S150J	COIL 15UH	1	
L3805		VLQEL05F101K	COIL 100UH	1	
L3806		VLQEL05F681K	COIL 680UH	1	
L3808		VLQEL05F470K	COIL 47UH	1	
L3809		VLQEL05S391K	COIL 390UH	1	
L3810		VLQEL05F101K	COIL 100UH	1	
L3811		VLQEL05F470K	COIL 47UH	1	
L3812		VLQEL05F681K	COIL 680UH	1	
L4401		VLQEL07F822J	COIL 8200UH	1	
L4402		VLQEL05S471K	COIL 470UH	1	
L6001		VLQEL05S121J	COIL 120UH	1	
P1001		VJP1393T	CONNECTOR(MALE) 13P	1	
P2001		VJP1237T	CONNECTOR(MALE) 10P	1	
P2501		VJP1932T	CONNECTOR(MALE) 15P	1	
P3001		VJP1237T	CONNECTOR(MALE) 10P	1	
P4001		VJP1233R	CONNECTOR(MALE) 6P	1	
P6001		VJS2571A012	CONNECTOR(FEMALE) 12P	1	
P6002		VJS2571A004	CONNECTOR(FEMALE) 4P	1	
P7501		VJS1662	CONNECTOR(FEMALE) 14P	1	
PK3203		VJR0190	CONNECTOR(MALE) 12P	1	
PK4401		VJR0189	CONNECTOR(MALE) 10P	1	
PK4402		VJR0275	PACK PIN	1	
PK4501,02		VJR0189	CONNECTOR(MALE) 10P	2	
Q2101		MSC2295	TRANSISTOR	1	<R>
Q2103,04		MSB709	TRANSISTOR	2	<R>
Q2201-04		MSD601	TRANSISTOR	4	<R>
Q2521		2SD1273	TRANSISTOR	1	<R>
Q2522		2SD637	TRANSISTOR	1	<R>
Q3001-03		MSD601	TRANSISTOR	3	<R>
Q3004		2SB643	TRANSISTOR	1	(Q,R,S)<R>
Q3005		MSC2295	TRANSISTOR	1	<R>
Q3006		MSD601	TRANSISTOR	1	<R>
Q3007,08		MSC2295	TRANSISTOR	2	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3009		MSB709	TRANSISTOR	1	<R>
Q3201		MSB709	TRANSISTOR	1	<R>
Q3202-06		MSD601	TRANSISTOR	5	<R>
Q3207		MSB709	TRANSISTOR	1	<R>
Q3301		MSB709	TRANSISTOR	1	<R>
Q3302,03		MSC2295	TRANSISTOR	2	<R>
Q3304		MSD601	TRANSISTOR	1	<R>
Q3801		MSD601	TRANSISTOR	1	<R>
Q3804		MSB709	TRANSISTOR	1	<R>
Q4401		2SD639	TRANSISTOR	1	(Q,R,S)<R>
Q4501		2SD661	TRANSISTOR	1	(S,T)<R>
Q4502		2SB745	TRANSISTOR	1	(S)<R>
Q6001		MSD601	TRANSISTOR	1	<R>
Q6002		2SD638	TRANSISTOR	1	(Q,R,S)<R>
Q6003		2SD893	TRANSISTOR	1	<R>
Q6004,05		2SD973	TRANSISTOR	2	(S)<R>
Q6006,07		2SB644	TRANSISTOR	2	(Q,R,S)<R>
Q6008,09		MSD601	TRANSISTOR	2	<R>
QR2002,03		MRN2404	TRANSISTOR-RESISTOR	2	<R>
QR2201		MRN1403	TRANSISTOR-RESISTOR	1	<R>
QR2501		MRN1403	TRANSISTOR-RESISTOR	1	<R>
QR2502,03		MRN2404	TRANSISTOR-RESISTOR	2	<R>
QR3001		MRN2402	TRANSISTOR-RESISTOR	1	<R>
QR3202		MRN1404	TRANSISTOR-RESISTOR	1	<R>
QR3801		MRN1403	TRANSISTOR-RESISTOR	1	<R>
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QR6001		UN2215	TRANSISTOR-RESISTOR	1	<R>
QR6002		MRN2404	TRANSISTOR-RESISTOR	1	<R>
QR6003		DTA113ZK	TRANSISTOR-RESISTOR	1	<R>
QR6004-06		MRN1403	TRANSISTOR-RESISTOR	3	<R>
QR6007		MRN1402	TRANSISTOR-RESISTOR	1	<R>
QR6008,09		MRN1403	TRANSISTOR-RESISTOR	2	<R>
QR6010		UN1211	TRANSISTOR-RESISTOR	1	<R>
R2001		ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	1	
R2002		ERJ6GEYJ122	M.RESISTOR CH1/10W 1.2K	1	
R2003		ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	1	
R2004		ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	1	
R2005		ERX12SJR68E	M.RESISTOR 1/2W 0.68	1	
R2006		ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	1	
R2007		ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	1	
R2009		ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	1	
R2010-12		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	3	
R2013-15		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	3	
R2016		ERX12SJR47E	M.RESISTOR 1/2W 0.47	1	
R2102,03		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	2	
R2104		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R2105		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R2106		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	
R2107		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R2108		ERJ6GEYJ333	M.RESISTOR CH 1/10W 33K	1	
R2109,10		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	2	
R2111		ERJ6GEYJ224	M.RESISTOR CH 1/10W 220K	1	
R2112		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R2113,14		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	2	
R2115		ERJ6GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R2116,17		ERJ6GEYJ332	M.RESISTOR CH 1/10W 3.3K	2	
R2118		ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2119		ERJ6GEYJ824	M.RESISTOR CH 1/10W 820K	1	
R2120		ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2121		ERJ6GEYJ824	M.RESISTOR CH 1/10W 820K	1	
R2122,23		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R2124		ERJ6GEYJ821	M.RESISTOR CH 1/10W 820	1	
R2137		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R2144		ERJ6GEYJ124	M.RESISTOR CH 1/10W 120K	1	
R2145,46		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	2	
R2147,48		ERJ6GEYJ224	M.RESISTOR CH 1/10W 220K	2	
R2149,50		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	2	
R2151,52		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R2153		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R2154-57		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	4	
R2160,61		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R2201		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R2202		ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	1	
R2203		ERJ6GEYG334	M.RESISTOR CH 1/10W 330K	1	
R2204		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R2205		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R2206		ERJ6GEYJ151	M.RESISTOR CH 1/10W 150	1	
R2207,08		ERJ6GEYJ821	M.RESISTOR CH 1/10W 820	2	
R2209		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R2210		ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2211		ERJ6GEYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R2212		ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	1	
R2213		ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2214		ERJ6GEYJ681	M.RESISTOR CH 1/10W 680	1	
R2215		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	1	
R2216		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	
R2501		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	1	
R2502		ERJ6GEYJ391	M.RESISTOR CH 1/10W 390	1	
R2505		ERJ6GEYG752	M.RESISTOR CH 1/10W 7.5K	1	
R2506		ERJ6GEYG621	M.RESISTOR CH 1/10W 620	1	
R2507		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R2508		ERJ6GEYJ474	M.RESISTOR CH 1/10W 470K	1	
R2509		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	1	
R2510-13		ERJ6GEYJ332	M.RESISTOR CH 1/10W 3.3K	4	
R2514		ERJ6GEYJ474	M.RESISTOR CH 1/10W 470K	1	
R2515		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R2516		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	1	
R2517		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R2518		ERJ6GEYJ331	M.RESISTOR CH 1/10W 330	1	
R2519-21		ERJ6GEYJ150	M.RESISTOR CH 1/10W 15	3	
R2522		ERG2ANJ471	M.RESISTOR 2W 470	1	
R2523		ERDS1TJ332	C.RESISTOR 1/2W 3.3K	1	
R2524		ERJ6GEYJ681	M.RESISTOR CH 1/10W 680	1	
R2525-27		ERJ6GEYJ180	M.RESISTOR CH 1/10W 18	3	
R2528		ERJ6GEYG472	M.RESISTOR CH 1/10W 4.7K	1	
R2529		ERJ6GEYG391	M.RESISTOR CH 1/10W 390	1	
R2530		ERJ6GEYG682	M.REISITOR CH 1/10W 6.8K	1	
R3001,02		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	2	
R3003		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3004		ERJ6GEYJ221	M.RESISTOR CH 1/10W 220	1	
R3005		ERJ6GEYJ682	M.RESISTOR CH 1/10W 6.8K	1	
R3006		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R3007		ERJ6GEYJ821	M.RESISTOR CH 1/10W 820	1	
R3008-10		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	3	
R3011-16		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	6	
R3017		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3018-22		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	5	
R3023		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3024		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3025		ERJ6GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3026		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3027		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R3028		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R3029		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R3030		ERJ6GEYJ821	M.RESISTOR CH 1/10W 820	1	
R3031		ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R3032		ERJ6GEYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R3033		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3034		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R3035,36		ERJ6GEYJ473	M.RESISTOR CH 1/10W 47K	2	
R3037		ERDS2TJ471	C.RESISTOR 1/4W 470	1	
R3038		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3201,02		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	2	
R3203		ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R3204		ERJ6GEYJ683	M.RESISTOR CH 1/10W 68K	1	
R3205		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3206		ERJ6GEYJ564	M.RESISTOR CH 1/10W 560K	1	
R3207		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R3208		ERJ6GEYJ333	M.RESISTOR CH 1/10W 33K	1	
R3209		ERJ6GEYJ331	M.RESISTOR CH 1/10W 330	1	
R3210		ERJ6GEYG753	M.RESISTOR CH 1/10W 75K	1	
R3211		ERJ6GEYJ684	M.RESISTOR CH 1/10W 680K	1	
R3212		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3213		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3214		ERJ6GEYG473	M.RESISTOR CH 1/10W 47K	1	
R3215		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R3216,17		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R3218		ERJ6GEYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3219		ERJ6GEYJ331	M.RESISTOR CH 1/10W 330	1	
R3220-22		ERJ6GEYJ152	M.RESISTOR CH 1/10W 1.5K	3	
R3223		ERJ6GEYJ681	M.RESISTOR CH 1/10W 680	1	
R3224		ERJ6GEYJ391	M.RESISTOR CH 1/10W 390	1	
R3225		ERJ6GEYJ331	M.RESISTOR CH 1/10W 330	1	
R3226		ERJ6GEYJ391	M.RESISTOR CH 1/10W 390	1	
R3227		ERJ6GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3228		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3230		ERJ6GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3231		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	
R3232		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3233-35		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	3	
R3236,37		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R3302		ERJ6GEYJ391	M.RESISTOR CH 1/10W 390	1	
R3303		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3304		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3305		ERJ6GEYJ824	M.RESISTOR CH 1/10W 820K	1	
R3306		ERJ6GEYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3307		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3308		ERJ6GEYJ123	M.RESISTOR CH 1/10W 12K	1	
R3309		ERJ6GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3310		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3311		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R3312		ERJ6GEYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R3312		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R3315		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3317		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	
R3320		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3325		ERJ8GCYJ151	M.RESISTOR CH 1/8W 150	1	
R3326		ERJ6GEYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R3328		ERJ6GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3329,30		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R3331		ERJ6GEYJ561	M.RESISTOR CH 1/10W 560	1	
R3332,33		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	2	
R3334-36		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	3	
R3337		ERJ6GEYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R3338		ERJ6GEYJ124	M.RESISTOR CH 1/10W 120K	1	
R3339		ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	1	
R3347		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R3815,16		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R3818,19		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	2	
R3820		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3821		ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	1	
R3822		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3823		ERJ6GEYJ271	M.RESISTOR CH 1/10W 270	1	
R3824		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R3829		ERJ6GEYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R3830		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3831		ERJ6GEYJ821	M.RESISTOR CH 1/10W 820	1	
R3832		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R3833		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R3834		ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	1	
R4001		ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
R4030		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R4402		ERJ6GEYJ183	M.RESISTOR CH 1/10W 18K	1	
R4403		ERJ6GEYG203	M.RESISTOR CH 1/10W 20K	1	
R4404		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R4405		ERJ6GEYJ151	M.RESISTOR CH 1/10W 150	1	
R4407		ERJ6GEYJ221	M.RESISTOR CH 1/10W 220	1	
R4408		ERJ6GEYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R4409		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R4410		ERJ6GEYJ683	M.RESISTOR CH 1/10W 68K	1	
R4411,12		ERJ6GEYJ331	M.RESISTOR CH 1/10W 330	2	
R4413		ERJ6GEYJ334	M.RESISTOR CH 1/10W 330K	1	
R4414		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R4415		ERJ6GEYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4416		ERJ6GEYJ105	M.RESISTOR CH 1/10W 1M	1	
R4417		ERJ6GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R4418,19		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	2	
R4420		ERJ6GEYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R4421		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4422		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R4423		ERJ6GEYG473	M.RESISTOR CH 1/10W 47K	1	
R4424,25		ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	2	
R4426		ERJ6GEYJ123	M.RESISTOR CH 1/10W 12K	1	
R4427		ERJ6GEYJ153	M.RESISTOR CH 1/10W 15K	1	
R4428		ERJ6GEYJ681	M.RESISTOR CH 1/10W 680	1	
R4429		ERJ6GEYJ682	M.RESISTOR CH 1/10W 6.8K	1	
R4438		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R4439		ERJ6GEYJ331	M.RESISTOR CH 1/10W 330	1	
R4501		ERDS2TJ472	C.RESISTOR 1/4W 4.7K	1	
R4502		ERDS2TJ101	C.RESISTOR 1/4W 100	1	
R4503		ERDS2TJ153	C.RESISTOR 1/4W 15K	1	
R4504		ERDS2TJ104	C.RESISTOR 1/4W 100K	1	
R4505		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R4506		ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R4507-09		ERDS2TJ103	C.RESISTOR 1/4W 10K	3	
R4510		ERDS2TJ392	C.RESISTOR 1/4W 3.9K	1	
R4511		ERDS2TJ152	C.RESISTOR 1/4W 1.5K	1	
R4513		ERDS2TJ472	C.RESISTOR 1/4W 4.7K	1	
R4514,15		ERDS2TJ750	C.RESISTOR 1/4W 75	2	
R4516		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R4517		ERDS2TJ473	C.RESISTOR 1/4W 47K	1	
R6002		ERJ6GEYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6003,04		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	2	
R6005,06		ERJ6GEYJ333	M.RESISTOR CH 1/10W 33K	2	
R6007		ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	1	
R6008,09		ERJ6GEYJ561	M.RESISTOR CH 1/10W 560	2	
R6010,11		ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	2	
R6012		ERJ6GEYJ391	M.RESISTOR CH 1/10W 390	1	
R6014		ERJ6GEYJ474	M.RESISTOR CH 1/10W 470K	1	
R6015		ERJ6GEYJ183	M.RESISTOR CH 1/10W 18K	1	
R6016		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R6017		ERJ6GEYJ121	M.RESISTOR CH 1/10W 120	1	
R6018		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R6024		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R6025		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	
R6026		VRE0034E153	M.RESISTOR CH 1/10W 15K	1	
R6027		VRE0034E392	M.RESISTOR CH 1/10W 3.9K	1	
R6028		VRE0034E683	M.RESISTOR CH 1/10W 68K	1	
R6029		ERDS2TJ472	C.RESISTOR 1/4W 4.7K	1	
R6030		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R6031-40		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	10	
R6042,43		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R6047,48		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R6049		ERJ6GEYJ153	M.RESISTOR CH 1/10W 15K	1	
R6050-52		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	3	
R6053		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R6054		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R6055		ERDS1FJ220	C.RESISTOR 1/2W 22	1	
R6056		ERJ6GEYG131	M.RESISTOR CH 1/10W 130	1	
R6057		ERJ6GEYJ221	M.RESISTOR CH 1/10W 220	1	
R6058		ERJ6GEYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R6059		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R6060		ERJ6GEYG201	M.RESISTOR CH 1/10W 200	1	
R6061		ERG3SJ220	M.RESISTOR 3W 22	1	
R6062		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R6063		ERJ6GEYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6064		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R6072		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R6073		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R6075		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R6076		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R6077		ERJ6GEYJ683	M.RESISTOR CH 1/10W 68K	1	
R6078		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R6081		ERJ6GEYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R6082		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R6083		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R6084,85		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	2	
R6087-89		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	3	
R6090		ERDS1FJ151	C.RESISTOR 1/2W 150	1	
R6091		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R6092		ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R6093		ERDS1TJ221	C.RESISTOR 1/2W 220	1	
R6306		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
S4501		VSS0297	SWITCH	1	<R>
SW6301		VSS0126	SWITCH	1	<R>
T4401		EIQ7QF014Q	TRANSFORMER	1	<R>
VR2004		EVND4AA00B54	V.RESISTOR 50K	1	
VR3001		EVNDRAA00B52	V.RESISTOR 500	1	
VR3201		EVND1AA00B54	V.RESISTOR 50K	1	
VR3302		EVN4YCA00B23	V.RESISTOR 2K	1	
VR3803		EVND4AA00B14	V.RESISTOR 10K	1	
VR4001		EVND4AA00B14	V.RESISTOR 10K	1	
VR4002		EVND4AA00B25	V.RESISTOR 200K	1	
VR4502		EVND4AA00B25	V.RESISTOR 200K	1	
X2101		VSX0244	CRYSTAL OSCILLATOR	1	<R>
X3201		VSX0114	CRYSTAL OSCILLATOR	1	<R>
X3301		VSX0225	CRYSTAL OSCILLATOR	1	<R>
X3801		VSX0162	CRYSTAL OSCILLATOR	1	<R>
X6001		VSX0230	CRYSTAL OSCILLATOR	1	<R>
			MISCELLANEOUS		
E12		VJF0374	C.B.A. HOLDER	1	
E13		VKC0326	HINGE	2	
E14		VMA7619	MAIN EARTH ANGLE	1	
E15		VSC1215	HEAT SINK	1	
E16		VMC0493	HEAT SINK SPRING	1	
E17		XTV3+8G	SCREW	3	
E18		VMC0075	HEAT SINK FIX SPRING	1	
E19		VMP2631	FUSE HOLDER ANGLE	1	<!><R>
E20		VMZ1352	HEAT SINK COVER	1	
E21		VSC1068	HEAT SINK	1	
E22		VSC2734	HEAT SINK	1	
	■	VEP05137H	HEAD AMP C.B.A.		
C501		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C502		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C505		ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C507		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C508		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C509		ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1	
C510,11		ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	2	
C513		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C514		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C516		ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C517		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C518		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C523		ECEA1HK010	E.CAPACITOR 50V 1U	1	
C524		ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C525		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C528		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C529		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C530		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C531		ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	
C532		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C533		ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C534,35		ECEA1CK100	E.CAPACITOR 16V 10U	2	
C536		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C537		ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	
C538		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C539		ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	
C540		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C541		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C542		ECUM1H080DCN	C.CAPACITOR CH 50V 80P	1	
IC501		BA7274S	IC	1	<R>
L501		VLQ0460	COIL	1	
L503		VLQEL05F270K	COIL 27UH	1	
L504		VLQ0460	COIL	1	
P501		VJP1237T	CONNECTOR(MALE) 10P	1	
P502		VJS1449	CONNECTOR(FEMALE) 8P	1	
Q501		MSB709	TRANSISTOR	1	<R>
Q502		MSC2295	TRANSISTOR	1	<R>
R501		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R502		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R503		ERJ6GEYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R504		ERJ6GEYJ681	M.RESISTOR CH 1/10W 680	1	
R507		ERJ6GEYJ561	M.RESISTOR CH 1/10W 560	1	
R508		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R510		ERJ6GEYJ331	M.RESISTOR CH 1/10W 330	1	
R512		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R513		ERJ6GEYJ330	M.RESISTOR CH 1/10W 33	1	
R518		ERJ6GEYJ330	M.RESISTOR CH 1/10W 33	1	
R519		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	
R523		ERJ6GEYJ821	M.RESISTOR CH 1/10W 820	1	
R524		ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
R525		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R526		ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
R527		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R528		ERJ6GEYJ821	M.RESISTOR CH 1/10W 820	1	
R529		ERJ6GEYJ561	M.RESISTOR CH 1/10W 560	1	
R530		ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
R531		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R532		ERJ6GEYJ100	M.RESISTOR CH 1/10W 10	1	
R533		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R534-36		ERJ6GEYJ561	M.RESISTOR CH 1/10W 560	3	
VR501		EVND1AA00B23	V.RESISTOR 2K	1	
VR502		EVND1AA00B13	V.RESISTOR 1K	1	
			MISCELLANEOUS		
E23		VSC2354	SHIELD CASE (MIDDLE)	1	
E24		VSC2353	SHIELD CASE (TOP)	1	
E25		VSC2355	SHIELD CASE (BOTTOM)	1	
	■	VEP07608A	TIMER C.B.A.		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C7001		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7002		ECEA1HK100	E.CAPACITOR 50V 10U	1	
C7003		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7004		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C7005		ECEA1AK330	E.CAPACITOR 10V 33U	1	
C7006		ECRHA020D41	TRIMMER	1	
C7007		ECUM1H100DCN	C.CAPACITOR CH 50V 10P	1	
C7008		ECRHA030E41	TRIMMER 3P	1	
C7009		ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C7010		ECEA1AK330	E.CAPACITOR 10V 33U	1	
C7011		ECEA1CK100	E.CAPACITOR 16V 10U	1	
C7012		ECUM1H473ZFN	C.CAPACITOR CH 50V 0.047U	1	
C7013		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C7014		ECUM1H473ZFN	C.CAPACITOR CH 50V 0.047U	1	
C7015		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7017		ECUM1H100DCN	C.CAPACITOR CH 50V 10P	1	
C7018-21		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	4	
C7022		ECQB1H103JH	P.CAPACITOR 50V 0.01U	1	
D7001-03		MA151K	DIODE	3	<R>
D7006-08		MA151K	DIODE	3	<R>
D7009		MA151WA	DIODE	1	<R>
D7011		MA151WA	DIODE	1	<R>
D7013		MA151WA	DIODE	1	<R>
D7015		MA151WA	DIODE	1	<R>
D7017		MA151WA	DIODE	1	<R>
D7021		MA151K	DIODE	1	<R>
D7022		MA151WA	DIODE	1	<R>
D7036		MA4068M	DIODE	1	<R>
D7037		VLL0030	LED	1	<R>
D7038		LN81RCPHL	LED	1	<R>
D7039		MA151K	DIODE	1	<R>
D7040		MA720	DIODE	1	<R>
D7041		VLL0030	LED	1	<R>
DP7001		VSL0189	DISPLAY TUBE	1	
IC7001		M37421-305SP	IC	1	<R>
IC7002		MN1220	IC	1	<R>
IC7003		MN1280T	IC	1	<R>
IC7004		MN1280L	IC	1	<R>
P7001		VJS1492	CONNECTOR(FEMALE) 14P	1	
P7002		VJS2652	CONNECTOR(FEMALE) 16P	1	
P7003		VJP1247T	CONNECTOR(MALE) 7P	1	
Q7001		MSD601	TRANSISTOR	1	<R>
Q7002,03		MSD602	TRANSISTOR	2	<R>
QR7001		MRN1402	TRANSISTOR-RESISTOR	1	<R>
QR7002		MRN1407	TRANSISTOR-RESISTOR	1	<R>
QR7003		MRN2403	TRANSISTOR-RESISTOR	1	<R>
QR7004		MRN1404	TRANSISTOR-RESISTOR	1	<R>
R7001-04		ERJ6GEYJ683	M.RESISTOR CH 1/10W 68K	4	
R7005		ERDS1TJ3R9	C.RESISTOR 1/2W 3.9	1	
R7006,07		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	2	
R7008		ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	1	
R7009-12		ERJ6GEYJ182	M.RESISTOR CH 1/10W 1.8K	4	
R7013,14		ERJ8GCYJ181	M.RESISTOR CH 1/8W 180	2	
R7015		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R7016		ERJ6GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R7017		ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R7018		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R7019		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R7020-27		ERJ6GEYJ104	M.RESISTOR CH 1/10W 100K	8	
R7028-30		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	3	
R7031		ERJ6GEYJ105	M.RESISTOR CH 1/10W 1M	1	
R7032		ERJ6GEYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R7033		ERJ6GEYJ106	M.RESISTOR CH 1/10W 10M	1	
R7034		ERJ6GEYJ224	M.RESISTOR CH 1/10W 220K	1	
R7035		ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	1	
R7036		ERJ6GEYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R7037		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R7038		ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	1	
R7039		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R7040		ERJ6GEYJ470	M.RESISTOR CH 1/10W 47	1	
R7041-46		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	6	
R7047		ERJ8GCYJ181	M.RESISTOR CH 1/8W 180	1	
SW7001-08		EVQ11407K	SWITCH	8	<R>
SW7009		VSS0236	SWITCH	1	<R>
SW7010		VSS0312	SWITCH	1	<R>
SW7012-14		EVQ11407K	SWITCH	3	<R>
VR7001		EWAKFKXC3B24	V.RESISTOR 20K	1	
X7001		VSX0140	CRYSTAL OSCILLATOR	1	<R>
X7002		VSX0094	CRYSTAL OSCILLATOR	1	<R>
			MISCELLANEOUS		
E26		VGF0240	LED HOLDER	1	
E27		VGU4553	SW KNOB	2	
E28		VJF0762	FIP HOLDER	1	
E29		VMX0473	LED SPACER	1	
E30		VKC0372	HINGE	2	
	■	VEP06699A	OPERATION C.B.A.		
D6501		MA151WA	DIODE	1	<R>
D6503		MA151WA	DIODE	1	<R>
D6505		MA151WA	DIODE	1	<R>
D6507		MA151WA	DIODE	1	<R>
D6509		MA151WA	DIODE	1	<R>
D6511		MA151WA	DIODE	1	<R>
D6513		MA151K	DIODE	1	<R>
P6501		VJP2652	CONNECTOR(MALE) 16P	1	
SW6501-12		EVQ11407K	SWITCH	12	<R>
SW6513		VSS0236	SWITCH	1	<R>
			MISCELLANEOUS		
E31		VGU4553	SW KNOB	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP01379L	POWER SUPPLY C.B.A.		FOR AG-6024-B/E
C1101		ECQU2A224MN	P.CAPACITOR 100V 0.22U	1	<!><R>
C1102		ECQU2A154MNB	P.CAPACITOR 100V 0.15U	1	
C1108		ECOS2GU820	P.CAPACITOR 200V 82U	1	
C1109		ECEA2GG010	E.CAPACITOR 400V 1U	1	
C1110		ECQE6473JZ	P.CAPACITOR 630V 0.047U	1	
C1111		ECKD3D331KBN	C.CAPACITOR 2KV 330P	1	
C1113		ECQB1H472KZ	P.CAPACITOR 50V 4700P	1	
C1114		ECA1CXLV470	E.CAPACITOR 16V 47U	1	
C1115		ECQB1H472KZ	P.CAPACITOR 50V 4700P	1	
C1117		ECQP1101JZ	P.CAPACITOR 100V 100P	1	
C1118		ECEA1HGE101	E.CAPACITOR 50V 100U	1	
C1119,20		ECEA1DFZ681X	E.CAPACITOR 20V 680U	2	
C1121		ECEA1HGE100	E.CAPACITOR 50V 10U	1	
C1122		ECEA1AFZ331X	E.CAPACITOR 10V 330U	1	
C1123		ECEA1HGE100	E.CAPACITOR 50V 10U	1	
C1124,25		ECEA1AGE101	E.CAPACITOR 10V 100U	2	
C1126		ECEA1CGE470	E.CAPACITOR 16V 47U	1	
C1127		ECEA0JFZ471	E.CAPACITOR 6.3V 470U	1	
C1128-31		ECKF1H103ZFB	C.CAPACITOR 50V 0.01U	4	
C1132		ECEA1CGE100	E.CAPACITOR 16V 10U	1	
C1134,35		ECKF1H103ZFB	C.CAPACITOR 50V 0.01U	2	
C1136		ECQV1H105JZ	P.CAPACITOR 50V 1U	1	
C1137		ECQV1H223JS	P.CAPACITOR 50V 0.022U	1	
C1142		ECKDNS152MEX	C.CAPACITOR 1500P	1	<!><R>
C1145		ECKDNS152MEX	C.CAPACITOR 1500P	1	<!><R>
C1147		ECKDNS152MEX	C.CAPACITOR 1500P	1	<!><R>
C1149		ECKF1H821KB	C.CAPACITOR 50V 820P	1	
D1102		S1WBA60	DIODE	1	<R>
D1103		VSD0002	DIODE	1	<R>
D1104		AP01C	DIODE	1	<R>
D1105		MA178	DIODE	1	<R>
D1106		MA4039	DIODE	1	<R>
D1107		MA165	DIODE	1	<R>
D1108		ERA22-02	DIODE	1	<R>
D1109		RL2ZP	DIODE	1	<R>
D1110		MA185	DIODE	1	<R>
D1111		11EQS04	DIODE	1	<R>
D1112		ERB83-004L17	DIODE	1	<R>
D1113		MA2200B	DIODE	1	<R>
D1114		MA4130L	DIODE	1	<R>
L1101,02		ELF18D290A	COIL	2	
L1103		VLQ0335	COIL	1	
P1101		VJP1394T	CONNECTOR(MALE) 13P	1	
P1102		VJS2625	CONNECTOR(FEMALE)	1	FOR AG-6024-B/E<!><R>
Q1102		2SD1330	TRANSISTOR	1	<R>
R1101		ERC12AGM334	S.RESISTOR 1/2W 330K	1	
R1102,03		ERG2SJ823	M.RESISTOR 2W 82K	2	
R1104		ERDS2TJ562	C.RESISTOR 1/4W 5.6K	1	
R1106		ERG3ANJ683	M.RESISTOR 3W 68K	1	
R1108		ERD2FCVG182	C.RESISTOR 1/4W 1.8K	1	
R1111		ERG2SJ181	M.RESISTOR 2W 180	1	
R1113		ERG1SJ182E	M.RESISTOR 1W 1.8K	1	
R1114		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R1118		ERDS2TJ1R0	C.RESISTOR 1/4W 1.0	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R1123,24		ERDS2TJ153	C.RESISTOR 1/4W 15K	2	
R1125		ERW1PK2R2	W.RESISTOR 1W 2.2	1	
T1101		VLT0571	TRANSFORMER	1	<!><R>
			MISCELLAEOUS		
E32		VJF0318	FUSE HOLDER	1	<!><R>
E38		STK5392	IC	1	<R>(IC1102)
E39		STRD1816	IC	1	<R>(IC1101)
E40		XBA2C16TB0	FUSE	1	<!><R>
	■	VXA3820	MECHANISM CONNECTION C.B.A.		
IC1501		ON2170	IC	1	<R>
R1501,02		ERJ8GCYJ223	CHIP 1/8W 22K	2	
P1504		VJS2342W	CONNECTOR(FEMALE) 13P	1	
P1505		VJP1242T	CONNECTOR(MALE) 2P	1	
			MISCELLANEOUS		
E33		VMA7844	REINFORCEMENT PLATE (F)	1	
E34		VMA7845	REINFORCEMENT PLATE (R)	1	
E35		VMZ1366	PROTECTION SHEET	1	
	■	VEK3578	SUPPLY PHOTO TR. C.B.A.		
C1501		ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
Q1501		PN150NVS	TRANSISTOR	1	<R>
			MISCELLANEOUS		
E36		VMD0645	PHOTO TR. HOLDER	1	
	■	VEK4058	TAKE-UP PHOTO TR. C.B.A.		
C1502		ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
P1503		VJS2165	CONNECTOR(FEMALE) 6P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q1502		PN150NVS	TRANSISTOR	1	<R>
R1503		ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
			MISCELLANEOUS		
E37		VMD0645	PHOTO TR. HOLDER	1	